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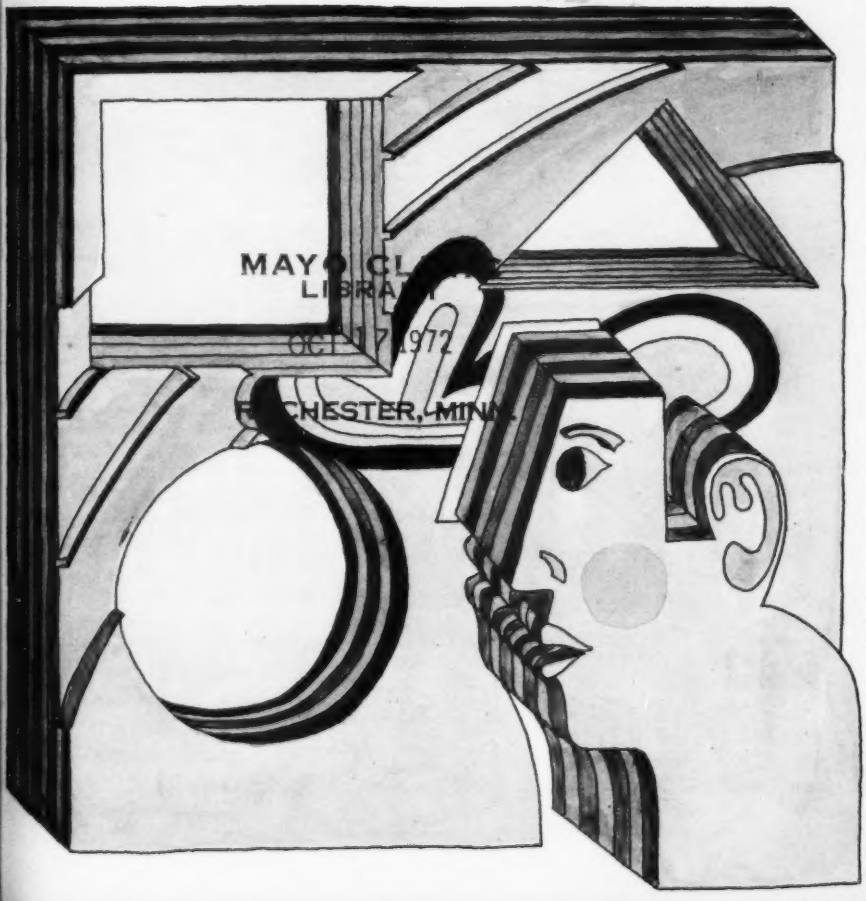

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# cover story

This issue of the *Digest* features condensations of articles on ecology and the environment.

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# An Ecological Perspective on Environmental Decision-Making

**Kenneth H. Craik**

An increasingly concerted and interdisciplinary effort over the past decade has sought to advance our understanding of man-environment relations within the context of modern industrial society. The adjustment of a society to its physical environment is a dynamic process that represents the cumulative and interactive effect of multifarious decisions by its individual members. It is commonly asserted that in preindustrial societies environmental decisionmaking is conducted by individuals or small groups close to the scene of application and entails a simple and flexible technology. In contemporary industrial-technological societies, environmental decisionmaking involves more complex organizational structures, a greater range and scale of application, and diverse kinds of technical specialists.

The network of participants and modes of participation in environmental decisionmaking in modern societies has yet to be analyzed systematically. However, research on environmental decisionmakers at various levels of participation has been conducted. At the nonprofessional level, there are studies on the belief systems concerning soil erosion of tropical farms, on the perception of natural hazards by residents of riverine flood plains and coastal flood plains, and on the perception of drought. Attention also has been focused upon professional environmental decisionmakers, such as architects, transportation planners, industrial designers, landscape architects, conservationists, urban designers and natural resources managers. The goal is to determine the kinds of persons they are, in terms of their environmental dispositions and other personality characteristics, the assumptions about man-environment relations which guide their professional decisions, and the behavioral and social goals they seek through environmental design and management policies. The extent and implications of differences between their comprehension of the physical environment and that of their clients and colleagues are also being examined.

Environmental designers and managers have recognized that they deal professionally with man-environment relations, for their decisions affect not only the physical environment but also the behavior of user-clients. Furthermore because of the increasing social and administrative distance between them and their clients, environmental decisionmakers have acknowledged that mechanisms must be devised to supply them with accurate, objective knowledge of their clientele.

Contemporary personality assessment may provide a broader and more valid array of information about client types than that gleaned by environmental decisionmakers on the basis of traditional face-to-face contacts. For example, naturalists and outdoor sportsmen are user-client types who represent opposite poles of a dimension variously termed the appreciative-purist versus the consumptive-utilitarian orientation. The distinction is not a hard and fast one, but systematic comparison of naturalists and outdoor sportsmen would have scientific and applied value. In this

research, traditional measures of interpersonal traits, value orientations, social attitudes, intellectual abilities and styles, and early life-history factors are combined with new techniques for assessing such environmental dispositions as pastoralism, urbanism, sensation-seeking, wildernism, and orientations toward privacy.

A second mechanism is the monitoring of the behavioral and social consequences of environmental transformations. There is a combination of elegance and common sense embodied in this research paradigm. For any man-influenced transformation of the physical environment, determine (a) who participated in it, (b) what beliefs and assumptions about human behavior operated, (c) what behavioral and social ends were sought, and (d) what were the actual behavioral and social consequences of it. A technology of environmental assessment which encourages observers and users to express their subtle reactions to environmental entities and plans by means of quick, sensitive, and standardized procedures must be refined, and work on this aspect of research technique is receiving attention.

The sociopsychological context of the design and planning process is also receiving attention. The formulation of the National Bureau of Standard's Operation Feedback encompasses the full paradigm: It proposes to monitor user reactions and acceptability for the products of Operation Breakthrough, relate these reactions to variation in physical features, and feed this information back into the design process and specification of performance criteria. Given a wider recognition of the value of such design and feedback cycles, the development of standard techniques for user assessments and an increase in scientific manpower, the process may become routine. In actuality, the cycle extends beyond a single unit of intervention and evaluation. Users may independently alter the physical setting in the postimplementation stage, in attempts to eliminate misfits, while the subsequent professional behavior of the environmental decisionmaker will presumably be altered by the feedback information.

In order to analyze the antecedents and consequences of behavior in an ecological perspective, a broader framework must be envisioned. Figure 1 will serve as a guide for discussion of the interplay among personal, societal, and environmental systems. The personality system refers to the skills, cognitive capacities, values, dispositions, and psychodynamics of the individual agent. Research on decisionmakers has focused on the personality variables related to their behavior toward the environmental system (relationship A), while research on the effects of the environmental transformations upon their clients' behavior has entailed relationship B.

The social system encompasses the institutional structures, regulatory principles, technological capacities, and adjustment mechanisms of a society. Relationships C and D entail interdisciplinary research between psychology and anthropology and sociology. Social system variables represent antecedent factors in the environmental behavior of the decisionmakers and their clients (relationship C). For example, differences in the environmental orientations and role conceptions of public health officers and water resource engineers, who both participate in the management of water quality, have been identified. Other research has found differences between midwest and New England water supply engineers in their willingness to encourage rec-

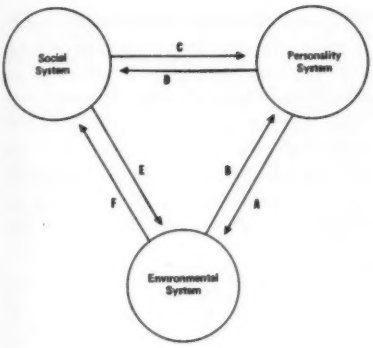


Figure 1. The interplay of personal, societal, and environmental systems.

reational uses of reservoirs. Midwest reservoirs are often scenes of swimming and boating; New England reservoirs are typically surrounded by "Keep Out" signs. Social system variables appear to be implicated, but it is not clear whether they involve regional differences in professional training or regional differences in norms concerning environmental behavior.

At the nonprofessional level, the school can play an important role in environmental socialization. For example, legislation in California seeks to foster the development of conservation education at all grade levels. During the current period in the development of environmental education, several models and orientations can be identified: (*a*) The outdoor education model, which stresses respect and understanding of nature, advocates contact with the nonurban outdoors as a means of education, and focuses largely upon personal experience; (*b*) the ecological approach, which stresses the interrelationship of organisms and environment and the possibility of remote and unforeseen consequences of human action, advocates a more conceptual emphasis in educational programs dealing with urban as well as nonurban environmental policy; and (*c*) the geographical tradition, which stresses spatial learning and the ways in which children conceptualize the large-scale physical environment that cannot be seen from a single vantage point. Systematic analysis of these modes of environmental socialization will require extensive and sensitive research.

Other institutional units must be recognized, including the family and the mass media. In a current study, the environmentally oriented messages conveyed in television programming are being analyzed. Other research is directed to the influence of environmental information upon geographical preferences and migration decisions.

The remaining relationships in Figure 1 must be noted briefly. The impact of contemporary environmental activists upon environmental norms and administrative and legal structures illustrates relationship D. Relationships E and F represent the study of social systems in their relationship to the environment at the cross-cultural and transnational level. Despite the emphasis of research in man-environment relations upon the relatively stable structural properties of buildings and geomorphological attributes of land surfaces, the environmental system must be recognized as a dynamic linked network of physical, chemical, and biological subsystems. Finally, it is interesting to observe that geography which has focused upon relationships E and F, is not directing its attention to relationships A and B.

Without doubt, a viable scientific mechanism is at hand for dealing with theoretical and problem-centered approaches to man-environment issues. This new direction of social

and behavioral research treats a broad array of topics. For anyone eager to become acculturated in it, several scholarly resources are available: a journal (*Environment and Behavior*); two newsletters (*Man-Environment Systems* and *Design Methods Group Newsletters*); a book of readings (Proshansky, H. M., Ittelson, W. H., and Rivlin, L. G. [eds.]. *Environmental Psychology: Man and His Physical Setting*. Holt, Rinehart and Winston, New York, 1970); a comprehensive review chapter (Craik, K. H. Environmental psychology. In Craik, K. H., et al. [eds.], *New Direction in Psychology*, Vol. 4, Holt, Rinehart and Winston, New York, pp. 1–122.); the proceedings of a 3-day research conference (Archea, J. and Eastman, C. [eds.]. *EDRA Two: Proceedings of the 2nd Annual Environmental Design Research Association Conference*. Carnegie-Mellon University, Pittsburgh, 1970); and a directory (*1969 Directory of Behavior and Environmental Design*).

Research on man-environment relations ensures an expansion and perhaps reformulation of the social and behavioral sciences and demands and rewards interdisciplinary endeavor. But whether this field of research can address itself to the complexity and scope of the ecological adjustments that will be required of our society will depend upon several factors.

One factor is the coordination of problem identification at the agency and professional level with problem formulation within university-based research programs. What might aid the process are forums at which environmental administrators, policymakers, and designers can identify man-environment issues which warrant systematic examination, discuss current scholarship and research and contribute insights drawn from professional experience, make available opportunities and settings for the conduct of man-environment research, and generate innovations in environmental design, management, and policy.

Training of manpower is a second factor that will play an important role. Graduate training programs in man-environment relations would yield a new generation of appropriately trained researchers. It would be advantageous for agencies to join together in support of a unified mode of graduate training rather than to train narrowly specialized research personnel.

The complex dynamics of man-environment relations requires broad-gauged interdisciplinary inquiry into intricately patterned social, psychological, cultural, and environmental phenomena. Scholars and scientists in many disciplines and professions now find themselves studying man-environment issues from diverse but complementary vantage points. They are striving to achieve a synthesis of research findings and an integration of conceptual frameworks and methodologies. This aspiration can be realized through a generation of researchers emerging from unified graduate training programs guided by the concerns of contemporary environmental decisionmakers.

Note: The review article on which this condensation is based has a 74-item bilbliography.

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# Man-Environment—Problems for Public Health

**Frederick Sargent, II**

The most urgent problems facing contemporary man stem from man-environment relationships and constitute a signal challenge for public health. The essence of this challenge for public health is that it must preserve the fitness of the ecosystem.

Three concepts constitute the substance of this challenge. First, there is the concept of the ecosystem. Second, there is the concept of the fitness of the ecosystem. And finally, there is the concept of the transformation of the natural to the human ecosystem. An examination of these concepts provides some insight into the nature and scope of the complex problems that shape this challenge.

### The Natural Ecosystem

There is an inexorable bond uniting living organisms with their environment. This bond encompasses not only relationships among organisms but also between organisms and their physical-chemical surroundings. In the biotic realm we find that animals depend upon plants. Plants capture solar energy and store it in plant nutrients. To fulfill their nutrient requirements, certain animals eat plants. These herbivores are in turn eaten by carnivores. In the physical realm we find that plants depend upon solar radiation and atmospheric carbon dioxide and water to accomplish the photosynthetic production of nutrients. At the same time all living organisms, plants and animals, depend upon atmospheric oxygen to provide for the release of energy from these same nutrients.

These relationships are identified as systems. Ecology studies how organisms interact with their environment. In short, ecology studies ecosystems.

The ecosystem is a closed metabolic system driven by solar energy. Because they trap solar energy and store it in carbohydrates, fats, and proteins, plants and marine phytoplankton are identified as producers. This captured energy and other nutrients taken from the soil and water are passed through a food chain of consumers who utilize the energy in various organismic processes and then lose it as heat. Only 10 percent of the energy passes from one step to the next; only four or five consumers can be supported in a food chain. There must be a continuing input of solar energy to drive the ecosystem. When animals die, their bodies, representing organic detritus, are consumed by decomposers. These organisms simplify the organic materials and return the simplified chemicals to the soil and water where they are recycled through the food chain.

The ecosystem is a dynamic system which exhibits stability by virtue of the diversity and adaptive capacity of its organisms to cope with environmental insults. As life began to develop, the organisms began to modify their environment. As a consequence of photosynthesis, oxygen was added to the atmosphere. Organic evolution proceeded hand in hand with environmental evolution. Gradually there developed a mutual adaptation between organism and environment. The Earth's environment provided the resources to support these organisms and through recycling their numbers or biomass achieved a dynamic balance with these resources. This dynamic fitness became the fitness of the ecosystem and was responsible for its stability.

On Earth's surface there is a thin

film of life driven by energy from the sun. It is the fitness of the ecosystem that provides for continuity, but this fitness depends on the quality of the environment in which the system functions. This was the "natural" ecosystem before the appearance of man.

**From Natural Ecosystem to Human Ecosystem**

Man emerged as a member of the Primate family and was just another consumer in the food chain who, because his numbers were small and dispersed with little cultural evolution, had no really significant impact on his environment. When Homo sapiens appeared 50,000 years ago, man became a new force to reckon with.

All living organisms modify their environment and leave their imprint on it. Man still engages in environmental modifications that are extensive, intensive, and rapid. His interventions in and manipulations of the processes of the planetary life support-system have produced a set of complex problems that constitute the essence of human ecology.

Man is reshaping the world. The development is characterized by a continuum of several stages in the transformation of natural ecosystem to human ecosystem. The primitive stage included a collection of shelters, a discrete cultural tradition, and hunting and gathering to support subsistence. The most recent stage consists of an interlocking web of subsystems which includes the city, its satellite towns and villages, a diversity of cultural traditions, a complex of communication links to areas of agricultural production, pools of wild plant and animal genes, natural resources, depots for wastes, and recreational sites. Increasingly man is drawing upon the resources of landscape and allocating them to fulfilling his own needs and requirements.

As the human population multiplies, man intervenes more and more in ecological processes causing two problems to emerge. First, man cannot, with any certainty, foretell the consequences of the transformations in which he is engaged. Second, he cannot yet design alternative processes for his own ecosystem to assure his survival.

In the transformations of the environment man seems to have locked himself into a course that will bring him to the climax visualized before he has acquired the knowledge and skills for managing such a human ecosystem. In spite of these deficiencies, man must make some tough decisions in the decades ahead. Let us examine the environmental problems and the decisions he must make in developing an adaptive strategy.

We can begin with the city—conceptualized as an empirical allocation of the landscape to accommodate high population densities in functionally effective configurations of structures, spaces, institutions, and processess. The city is inexorably bound to its surroundings and is a specialized consumer of resources. It is dependent upon a continuing inflow of natural resources, including foodstuffs, fuels, and raw materials. The productivity of the city can be measured in terms of diverse fabrications.

The city has become the scene of population shifts, an outward migration of people from the country to the city. To accommodate these flows the urban sprawl has developed, the central city, which began to deteriorate, is being rebuilt to house greater population densities, and vast transportation links have been con-

structed to carry workers between residence and place of work. The spread of the city has consumed large areas of productive agricultural land. The shift of the population into high density areas has sharpened the dependency of the city on the remaining agricultural lands and on the efficiency and effectiveness of the transportation links with that managed landscape.

Since fewer persons support the growing dependent populations residing in high density areas, the productivity of the agricultural lands must be intensified. High productivity demands that an increasing amount of the landscape be transformed from low-producing climax associations of a diversity of plants and animals to high-producing monocultures of domesticated plants and animals bred for human needs, resistance to pathogens, and adverse weather conditions. To maintain these managed lands as monocultures, they are protected by a variety of biocides with a specific toxicity for invaders and no toxicity for the human consumers of the produce. Because the nutrients extracted from the soil are not recycled but diverted to the human consumers, the nutrients must be restored as chemical fertilizers. To maintain the vigor and the resistance of the domesticates, they must be continually inbred with material from appropriate wild genes.

As demands upon the landscape intensify, its transformation to managed agricultural systems spreads and the space allocated to pools of wild plant and animal genes shrinks. As the stocks of wild genes diminish, the opportunity for invigorating the domesticates and for providing new domesticates is reduced. Because man's food base is already narrow, landscape planning will have to provide adequate space for reservoirs of wild plant and animal genes.

Reservoirs of wild genes represent only one decision in the adaptive strategy to conserve natural resources essential for the human ecosystem. Because of their vital subsistence role, steps must be taken to preserve the quality of lakes, rivers, estuaries, and zones of oceanic upwelling so that their biological productivity is maintained. Other natural resource extracts provide fuel to support man's activities and materials for his fabrications. Because the supply of these resources is finite, a rational resource management strategy must include plans for their conservation, their allocation among competing needs, and processes whereby essential materials may be recycled.

In the natural ecosystem organismic detritus is fed back into the environment and recycled into new organismic forms. Little detritus accumulates in the environment. Man adapted his methods of managing wastes to the processes of the natural ecosystem, but the scale and tempo of waste production have exceeded the capacity of natural feedbacks and disrupted the orderly functioning of the organisms in the ecosystem so that man must now devise innovative processes to manage the rapidly accumulating detritus of the human ecosystem.

Because the resources of the landscape are limited, competing demands must include the principle of multiple use. One response to population growth is to shorten the work period for each individual. This has increased both the numbers of persons and the time available for leisure to engage in outdoor recreational activities. The demand for leisure outlets is mounting and will not diminish. Therefore, in designing the human

ecosystem it will be necessary to allocate to recreation a variety of resources for specific needs, as well as the more general needs of the ecosystem.

**Environmental Health**

There has been considerable conceptual confusion within the health profession about the nature of environmental health and veritable chaos in regard to creating effective institutions for the management of environmental health problems. Organization and reorganization have been characteristic of the times, and environmental health has become a hot political issue which threatens to confound effective action and strengthen the barriers existing among governmental agencies.

These developments constitute strong proof that our educational institutions have ill-prepared professional people to deal effectively and efficiently with the serious problem of environmental health. The syndrome has been identified as the "management crisis" and is even more serious than the "environmental crisis." We can talk at length about environmental awareness, ecological perspective, and systems analysis, as well as interdisciplinary, multidisciplinary, and pandisciplinary approaches to problems, but, until such concepts can be institutionalized, no progress will be made in managing our environmental resources or preserving environmental quality.

The problems of environmental health are not those stemming from a healthy environment but rather the problems arising from the deteriorating quality of the environment. Although the phrase "environmental quality" is popular, no one has taken the time to sort out those qualities of the environment that must be preserved to assure the continual functioning of the Earth's life support-system.

**Environment**

Man has his being in a diversity of environments. The "biotic environment" and the "physical environment" are natural environments. The realm unique to man is the "sociocultural environment" created by him and identifying his traditions, his institutions, and his diverse technological artifacts. The institutions of this environment regulate his behavior, condition his perceptions, and establish his ethical values. It is upon the sociocultural environment that man depends most for his survival as a human being.

The health of man is a central concern. What is health? What is public health? What is occupational health? What is maternal and child health? As health professionals, we measure health in terms of rates of mortality, morbidity, accidents, and absenteeism. We do not have any baselines for actually measuring health. We focus our health budgets on patient care facilities. Only with considerable effort can one stir up any enthusiasm for "prevention" and "environment."

Because man and environment constitute a system, health is a process of man-environment interaction within a particular ecological context. Health must be defined and measured in terms of the adaptive capacity toward environmental circumstances and hazards. Health and illness are polar phases in the continuum of the life sequence. When adaptability is successful, the human being can be considered as healthy. When adaptability fails, he is ill. Health then is not the absence of all disease but the ability of the organism to function effectively within a given environment. Good health is a process of continuous adaptation to the myriad

of microbes, irritants, pressures, and problems which daily challenge man.

**Environmental Control**

In order to cope with this range of problems, it will be necessary to initiate broad innovative action programs that will deeply involve not only health professionals but also environmental scientists, engineers, and social scientists. The action must be purposeful and implemented by a consortium of governmental agencies, industries, colleges and universities, and the public. We have detailed the problems. We must now examine these problems realistically, assign rational priorities, and get on with the job of formulating and implementing action programs for environmental control.

**Criteria and Standards**

To be effective a program for environmental control must be based on sound criteria and realistic standards. These criteria and standards must be developed, promulgated, and enforced in an ecological context.

In developing the criteria for environmental standards the relevant documented scientific literature must be critically reviewed and analyzed. The standards that are adopted must take into account the concept of the fitness of the ecosystem. These standards must not assume that either man or the ecosystem is capable of adapting to a deterioration of the environment; it is shortsighted to set environmental standards with direct effects on human health as the primary criterion.

Such a practice is ecologically unsound. Man is part of the ecosystem; his survival depends upon how he manages the transformation of the natural ecosystem to the human ecosystem. Indeed, the indirect consequences of a disturbance of the fitness of the ecosystem may be more significant for his health and welfare than the direct effects on his health. He depends upon the biological productivity of the ecosystem to fulfill his nutrient requirements. Witness the indirect effects on man stemming from persistent pesticides and nuclear bomb testing. Many plants and animals show far less tolerance for environmental pollution than man. If these organisms prove to be essential links in the metabolism of the ecosystem, the consequences could be difficult to manage. And there is the possibility that a deterioration of environmental quality will lead to inadvertent weather modification. An irreversible alteration in the planetary weather systems could in turn disturb the fitness of the ecosystem. Meteorologists are now concerned about how the atmospheric carbon dioxide and particulate matter might be modifying global weather patterns and Earth's energy balance.

**Environmental Monitoring**

To implement a program of environmental control there must be a comprehensive network of environmental monitoring stations that provide baseline information and accumulate by continuing surveillance data to evaluate trends in the quality of the environment. To make enforcement practical there must be comprehensive information about local, regional, and global trends.

The monitoring network must include observations on the physicochemical conditions of air, water, and land, and environmentally sensitive sentinel organisms. Great care must attend the selection of observations to gain a precise definition of environmental quality.

In developing the definition we must identify those qualities of the environment that are *essential* for the

proper and adequate functioning of the planetary life support system, those qualities that make the environment habitable, comfortable, and esthetically pleasing, and those qualities that characterize environmental deterioration and threaten the fitness of the ecosystem. It is just as important to preserve essential qualities as it is to regulate the accumulation of toxic materials and technological wastes.

### Environmental Education

Education for environmental control has two important dimensions. First, there is need for technical and professional personnel qualified in the environmental sciences to work in governmental agencies and industry. The institutions of higher education must respond to this need with innovative problem-action-oriented educational programs. Second, because environmental control involves the public, there is need to develop educational programs for people of all ages that will allow them to become effectively involved in various aspects of environmental control—planning, political action, setting of standards, and adopting regulations.

### Institutionalization of Environmental Programs

Science is on the threshold of realistically tackling these ecological problems. Stating the problems in broad perspective is a start in formulating approaches toward their solution.

These problems are adisciplinary—they relate to no particular discipline, yet involve many disciplines. Environmental sciences make meaningless the traditional boundaries separating man's compartmentalization of knowledge and methodology. Science is on the threshold of tackling adisciplinary problems as evidenced by the increasing use of such phrases as interdisciplinary, multidisciplinary, pandisciplinary, and problem-oriented configurations of diverse specialists. Scientists are ready to leave their feudal baronies and join in innovative configurations specifically focused on solving definitive problems. Because the problems are adisciplinary, it will be necessary to formulate institutions wherein problem-oriented configurations of scholars can be brought together to work effectively and efficiently in teaching and research. The administration of these institutions will have to manage adisciplinary work relevant to tackling problem-oriented studies in the Federal establishment, in State governments, in professional organizations, and at colleges and universities. Innovation creates insecurity among established feudal baronies and allocation of limited financial resources strain institutional formulations. Innovative problem-oriented institutions should be encouraged and supported by national and international governmental agencies.

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# Politics and Ecology: A Political Profile of Student Eco-Activists

**Riley E. Dunlap and Richard P. Gale**

### Conflicting Images of Student Eco-Activists

The rise of ecology as a major issue on campuses has been accompanied by speculation concerning the base of student support for environmental action. A popular view is that student interest in the environment is "apolitical." Such a view implies that ecology is an issue which can unite the nation, bringing together those who have been divided on the issues of civil rights and Vietnam.

There are some who do not share this viewpoint. Those on the right tend to view the environmental movement as dominated by "radicals" who have taken up a new cause, while the left has viewed the government-endorsed Earth Day with suspicion, seeing it as an attempt to draw attention away from Indochina, racism, poverty, and other problems.

Thus the conflicting images of the political base of the campus environmental movement was one of our concerns in a study of ecology activism at the University of Oregon.

In May 1970, the month after Earth Day, we distributed questionnaires to students known to have been very active in environmental campaigns-organizations on the University of Oregon campus during 1969–70. These eco-activists also provided us with names of other students who were active participants in the organizations. All 51 students in the final sample indicated substantial involvement with environmental organizations and issues and regularly devoted time to environmental campaigns.

For comparative purposes, we mailed a nearly identical questionnaire to a random sample of 300 University of Oregon students, of which 237 returned usable questionnaires. We also drew on the results of an earlier study of Oregon SDS activists; portions of the following discussion will therefore involve three-way comparisons between the eco-activists, the random sample, and the SDS activists.

### Political Characteristics of Eco-Activists

Evidence shows that Oregon eco-activists are not "old radicals with a new cause"—none of the SDSers studied in 1969 was sufficiently involved in a campus environmental issue to have been included in our 1970 eco-activist sample. Furthermore, none of the campus "radicals" who came to prominence during 1970 played an important enough role in the environmental movement at Oregon to come to our attention.

Political self-descriptions provided by the three samples indicate the eco-activists are far less likely to view themselves as "radical left" than are the SDSers. On the other hand, the eco-activists are more liberal than the members of the random sample and are unlikely to be conservative. Thus, the eco-activists are not representative of the entire political spectrum, as is often assumed. Nearly three-fourths of the eco-activists indicate a political outlook of "slightly," "moderately," or "very liberal."

Additional data were obtained by inquiring about students' "political affiliation or preference." The eco-activists are just as likely as the random sample to indicate a traditional preference of Democratic, Republican,

or Independent. Furthermore, the three-fourths of the eco-activists and random sample members who make traditional identifications are distributed similarly in terms of their preferences. The eco-activists and the random sample contrast sharply with the SDS activists, as only three SDSers make traditional preferences. Furthermore, whereas the modal response of the SDS activists is "Peace and Freedom Party" (a popular left-wing alternative in the 1968 elections), the 13 eco-activists who do not indicate a preference of Republican, Democratic, or Independent write in some variant of "vote for the man," rather than a left-wing alternative.

A widespread view of eco-activists' political backgrounds maintains that concern for the environment has mobilized many politically inactive students. We therefore were interested in determining the extent of our respondents' activity on nonenvironmental issues.

All the SDSers had engaged in political activity; 90 percent of the eco-activists say they have engaged in political activity not related to environmental issues. The corresponding figure for the random sample is 68 percent, which may seem high until one recalls that the survey was conducted during the aftermath of Cambodia, Kent State, and Jackson State.

Knowing that Oregon eco-activists are cast in a predominately "liberal" mold allows one to make conjectures concerning the probable development of student environmental action; but more precise investigation of the "politics of ecology" requires an examination of the manner in which eco-activists relate environmental issues to general political and economic questions.

**Environmental Problems and the Political-Economic System**

To determine how the eco-activists and random sample view the relationship between environmental problems and the social structure, we first inquired about their perceptions of "the *basic* cause of environmental degradation." We asked them to choose the most appropriate response among four statements. The statement which defines environmental degradation as a social-structural problem by placing the blame on "capitalism" is selected by 14 percent of the eco-activists and 11 percent of the random sample. A statement which mildly criticizes the social structure by blaming society's preoccupation with economic growth is endorsed by one-half of the eco-activists and 43 percent of the random sample. A third statement implying that environmental degradation is a "people problem" created by the desires and habits of the American consumer is supported by one-fourth of the eco-activists and one-third of the random sample. The final statement reflects the view that environmental problems are inherent byproducts of our industrialized, technological society; this perspective is endorsed by only 10 percent of the eco-activists and 13 percent of the random sample.

We next asked the eco-activists and the random sample to select from three statements the one which describes their "attitude regarding the solution of environmental problems in our society." The eco-activists are much more likely to feel that change in our present political-economic system will be required in order to solve environmental problems. The eco-activists have little faith in the traditional strategy of "getting people involved," as only 14 percent endorse this view, compared to 53 percent of

the random sample. Although 61 percent of the eco-activists feel that solving environmental problems will require "significant" change in the system (compared to 42 percent of the random sample), a fourth believe that it will be necessary to replace our society with "a radically different system" in order to solve environmental problems (compared to 6 percent of the random sample).

Further analysis indicates that this greater willingness of the eco-activists to endorse strategies calling for social change holds regardless of what is taken to be the basic cause of environmental degradation.

**Tactics for Environmental Action**

In order to obtain some estimate of their potential involvement on specific issues, we presented the students with examples of environmental problems and asked them what action they would take. Besides providing the option of "take no action," we offered seven tactics ranging from traditional letter, telephone campaigns, and speaking at public hearings to more militant tactics such as picketing and sit-ins.

The two most realistic issues were a timber sale in a previously uncut area and air pollution by an industry that finds it "economically unfeasible" to alter their processing. All the eco-activists indicate a willingness to take action on the pollution issue, and all but one to act on the timber-sale issue. But, unexpectedly, 96 percent of the random sample also indicate a willingness to take action on these issues.

The eco-activists are much more likely to endorse the use of militant tactics to obtain a favorable outcome. On both issues, 55 percent of the eco-activists would be willing to engage in demonstrations possibly leading to arrest. Only a third of the random sample endorse such tactics for the pollution issue, and 19 percent for the timber-sale issue.

Yet, although the eco-activists are more willing to endorse militant tactics and more likely to perceive the necessity for social change, they do not take a more radical position regarding the basic cause of environmental degradation. We think this seeming paradox can be explained by the reluctance of environmentalists to adopt a politically radical stance.

**Environmental vs. Political Radicalism**

Environmentalists proclaim the necessity of a "revolutionary ecological perspective" but are vague concerning the need for a political-economic revolution. Calls for an ecological revolution are accompanied by suggested alterations in personal life style and plans for consumer education. When political action is suggested, the emphasis is on working within the political structure. Thus, in view of the reluctance of environmentalists to adopt a radical perspective on the economic and political structure of society, it is not surprising that the majority of the Oregon eco-activists fail to blame capitalism as the basic cause of environmental degradation.

It would appear that Oregon eco-activists are in a quandary: They see a need for increasingly militant tactics and also realize that basic social change will be required in order to solve environmental problems.

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# The Relation between Ecology and Social Structure in Primates

J. F. Eisenberg, N. A. Muckenhirn, and R. Rudran

We will discuss and reinterpret selected data on primate social systems with a view toward modifying existing concepts about these systems. In this discussion, we limit the concept of multimale troop, highlight the reproductive group as an organic unit with stages of growth and decline that vary with environmental circumstances, and introduce a new category of social structure—the age-graded male troop.

### The Existence of "Species Typical" Social Organization

One theory of primate social structure can be summarized as follows: Primate troops tend to have exclusive home ranges. The average size of a troop tends to be typical for a given species, and the composition of the troop, with respect to the proportions of sex and age classes, tends to be invariant. The ratio of males to females tends to be species-specific, and, for most species, there are more adult females than adult males in a troop.

The causes of intraspecific variation in social structures are related, in part, to differences in habitat, as well as to differences intrinsic to the troop; however, once the range in the variation of troop structure is described, a "modal" social organization for a species can often be discerned, thus facilitating comparisons with other species. It would appear that one generalization is possible: Those species that exhibit a wide range of adaptation to differing habitats often show an equally wide range in social structure. On the other hand, species that show a uniform adaptation to specific kinds of habitats often show a corresponding uniformity in their grouping tendencies.

### Grades of Social Structure—A Reassessment

Primate societies have been classified into grades based on social complexity, suggesting that higher grades were achieved through evolutionary stages, but also that parallel evolution has occurred.

The so-called solitary-living species are characterized by a minimum amount of direct social interaction with conspecifics of either sex in the same age class. Typically, the "mother family" (an adult female and her dependent offspring) forms the only cohesive social unit that indulges in daily, intimate interaction. Nevertheless, solitary species have a social life, and indirect communication is maintained among adults that have neighboring or overlapping home ranges. Their communication channels are characterized by olfactory and auditory modalities which maintain spacing except at mating times. A given pair of adults and their subadult descendants can share a home range completely or partially, even without communal nesting or regular physical contact. When there are overlapping home ranges, the same adult pair can reproduce in subsequent years; although individuals are dispersed, a family structure and relatively closed breeding unit are maintained.

The parental family structure is characterized in its extreme form by a bonded pair of adults and their immature descendants. This bonded state occurs rarely within the order Primates, but at least two subvariants of the parental spacing system must

be designated: mutual participation by the male and female in the rearing of offspring; and limited or no direct participation by the male in the rearing of dependent young.

Space utilization patterns for selected mammals may be summarized as follows:

I. Solitary pattern: adult males and females have separate centers of activity and encounter infrequently; extended ranges of the males overlap with the home ranges of the females; polygynous patterns.

II. Family group: a bonded pair and their subadult offspring travel as a homogeneous unit in an exclusive home range.

III. Unimale group (extended mother family): an adult male is in periodic contact with a cohesive group of adult females and their progeny.

IV. Unimale group: an adult male is in relatively constant contact with a cohesive group of adult females and their progeny.

V. Multimale group: a cohesive group of several adult males and females with their progeny.

The evolutionary patterns of I to II to IV to V and I to III to IV to V are the most probable steps in the formation of cohesive, multimale groups.

The unimale troop is more complex in structure than is the parental group because there is an increased representation of sex and age classes in the troop. Adult females must be tolerant of one another and have affiliation mechanisms to promote cohesiveness. The behavior of the adult male toward females can also contribute to cohesiveness, since he may "discipline" the females that stray from his group, thereby keeping the group intact.

In some primate societies several adult males associate continuously with adult females and young. Because of the contrast with other mammalian taxa in which males are not permanent members of the social group, the "multimale group" has been thought of as characteristic of higher primates. While some species do have a multimale troop, an intermediate form of social organization, between the unimale and the multimale structures, should be recognized. This may be termed the age-graded-male troop. Although several males of varying ages coexist in such troops, there are proportionately fewer males in these troops than there are in true multimale troops. The linear male dominance order is based on the age of the males, with no definable subunit of several males in the oldest age bracket. The lack of absence of fully adult males of equivalent age is the characteristic that defines an age-graded-male troop.

The age-graded-male troop may be considered a phylogenetic step toward the true multimale configuration with the former having an intermediate level of male tolerance that allows several young males to mature longer within the troop of their birth than do young males in unimale troops. Nevertheless, a fundamental tendency toward polygyny and the possibility of the troop's splitting and returning to a unimale condition remain. Thus, the age-graded-male troop is a variation on the unimale theme. What appears to distinguish species with an age-graded-male troop from species with a strong unimale tendency is: the adult "leader" male exhibits a wider range of tolerance of young males near his own age; and part of the tolerance shown by the dominant male appears to derive from the fact that these species generally have larger troops. In addition, the larger troops have larger home ranges with

more possibilities for dispersing into subgroups; and this tendency toward fractionation can generate new troops.

The multimale troop is characterized by an oligarchy of adult males roughly equivalent in age. Although these males may be ranked in dominance order, the ranking is not pronounced. Cooperation exists among the superdominant males, and they actively oppose and dominate younger males in the subadult age class.

In previous analyses of primate social organizations, the unimale groupings were considered specialized offshoots of the multimale grouping that supposedly characterized most advanced primates. This tendency to characterize most primate species by a multimale social structure and to set aside those species exhibiting unimale groups as cases of adaptation to extreme environments was motivated, in part, by a desire to emphasize the uniqueness of primate societies when contrasted with the social groupings of other mammals.

The preoccupation with the concept of the multimale organization was unfortunate for at least two reasons: Male-male tolerance mechanisms were studied to the virtual exclusion of the equally complex spacing and affiliation mechanisms exhibited by females; differences in the roles of males among the various species were masked by lumping a broad range of species-typical social organizations under the term "multimale groups." What is needed is an appraisal of primate species as mammals exploiting an ecosystem and subject to ecological pressures similar to those acting on other mammalian species.

We propose that not only terrestrial primate species adapted to arid climates but also most primate species adapted to forests are characterized by either unimale troops or age-graded-male troops. The true multimale system is a less frequently evolved specialization, and the term "multimale" should be restricted to those species having large troops that include several functionally reproductive adult males, as well as nonreproductive males of different ages.

**Regulation of Troop Size**

Although more data are needed on the natural genesis of troops, we can hypothesize that troop growth takes place as follows: We assume that the unimale tendency is most typical at moderate population density. In the "founder" situation, an adult male is attached to a cohesive unit of two adult females and their young. The troop grows by recruitment, yielding a subgroup of juveniles and a beta male subdominant to the alpha male or father. The two older males also form a subgroup. At greater densities younger males form a peripheral subgroup with no direct contact with the mothers and their young. The subgroup of adult males may increase to three, with the founding father still dominant, and now can be considered an age-graded-male group. Splitting of the new unstable troop can lead to the original unimale configuration.

The genesis of two new troops from a single large troop in those species exhibiting the age-graded-male system can occur without a takeover of leadership or fighting among males. For example, division of a large troop consisting of approximately 30 individuals would begin by a departure from the sleeping tree and a fractionation into two foraging subgroups, each subgroup being under the leadership of a different male. The largest subgroup of females would follow the dominant male, the second subgroup following a subdominant male. At the conclusion of the day's foraging, the animals would return to a

common sleeping place. The females themselves would exert a powerful influence on the ultimate composition of the subgroups, depending upon which male they followed. The second stage in troop development would consist of separate foraging patterns and occasional utilization of different sleeping trees. Eventually, the subgroups would be foraging and sleeping independently; thus, two new troops would be created.

### Social Pathology and Density

For many primate species, the conditions under which splitting and male "takeovers" can occur are, in part, related to the density of, and degree of disturbance in, the population. Alternately, fractionation of large groups can occur under ecological conditions (such as dispersed resources) that favor the maintenance of small groups.

It has been suggested that the unimale structure is a response to crowding stress, and the tendency for captive primate groups to assume a unimale or "despot" male configuration has often been assumed to be a pathological response. However, we believe that, although this unimale condition may manifest itself at crowding densities, it is erroneous to think of the unimale structure as being pathological.

### Some Correlations between Social Structure and Ecology

The history of primate evolution began with an insectivore-like form exhibiting certain arboreal adaptations with rather enlarged eyes, then underwent an extensive radiation throughout the Paleocene, giving rise to two main branches. One major branch differentiated into the present-day galagos, lorises, and lemurs, while the other differentiated into the Old World monkeys, New World monkeys, tarsiers, pongids, and hominids.

Judging from the habits of the living primates and the structure of fossil forms, the early primates were nocturnal and arboreal and subsisted on an omniverous diet, including fruits, small invertebrates, and perhaps small vertebrates. The early radiation took place in a tropical forest habitat, and, in general, present-day primates remain tropical in their distribution, with the greatest diversity of species occurring in the rain forests of West Africa, Indo-Malaysia, South America, and Madagascar. The forests were retained by primates as their primary environment; the acquisition of terrestrial habits is recent in primate history.

Primate genera can be classified by activity cycle, height of feeding, diet, and relative size. Many species weighing less than 2 kilograms are nocturnal and show a pronounced tendency to feed on high-energy food resources such as insects and fruit. Small primates are arboreal and are derived from the morphologically conservative lorisoid or lemuroid stocks. The larger primate species are almost diurnal, and several genera exhibit semiterrestrial adaptations.

The large diurnal primates display parallel evolution with respect to their feeding strategies; there have been trends away from dependency on energy-rich invertebrates and fruit toward the more readily available cellulose found in leaves. Those primate species that can utilize cellulose in leaves are referred to as folivores and are distinguished from frugivores, which cannot utilize cellulose. The arboreal folivores are the most numerous of the larger forest mammals, sometimes accounting for 30 to 40 percent of the arboreal mammalian biomass.

*Arboreal primates*—The smaller, nocturnal, insectivorous prosimians of Asia, Africa, and Madagascar seem to exhibit the same form of social organizations. They are solitary or organized into dispersed family groups. In part, their solitary habits may result from their being nocturnal, since the coordination of groups would be difficult. The solitary state may also correlate with their insectivorous habits, since foraging patterns may demand a solitary technique.

The small diurnal primates concentrated in the New World are insectivore-frugivores and exhibit two grouping tendencies—parental families or age-graded-male troops.

The only small diurnal primate of the Old World lives in large troops (20 to 100 individuals) that divide into subgroups based on age and reproductive classes. Although these species are superficially multimale, adult males show little affiliation with each other or with females except during the breeding season, and young males may form a peripheral group. Furthermore, the form of the social structure is influenced by the breeding season, which leads to dominance among males and the formation of temporary unimale breeding units.

Given the two broadly defined feeding niches, folivores and frugivores, the following generalizations can be made about the larger arboreal primates: Given comparable habitats, the frugivores have larger home ranges and move more widely during their daily activities than do folivores of an equivalent size class. Both trophic types tend toward either a unimale structure or an age-graded-male system, with folivores especially tending toward a unimale organization. Many folivores, but only some of the frugivores, employ troop or individual vocalizations in maintaining spacing between adjacent troops.

The arboreal folivores may be characterized by their vocalizations, which usually take the form of dawn choruses. The role of these calls is definitely related to intraspecific spacing. Certain observations suggest a possible correlation between seasonal increases in the frequency of chorusing behavior and breeding peaks for the chorusing species.

*Semiterrestrial primates*—In general, semiterrestrial species tend to live in variable habitats and are frugivores or varied feeders. They also tend to live in larger groups, compared to arboreal forms of a similar body size, and to form age-graded-male troops. A multimale grouping pattern among certain ground foragers seems to be effective as an antipredator mechanism.

However, terrestrial species which are adapted to extremely arid environments break up into foraging parties that are unimale in composition. Such foraging units reassemble at selected sleeping sites in the evening.

The chimpanzee occupies a range of habitats, from rain forest to forest-grassland. Troops seem to have a loose grouping pattern, although cohesive troop behavior may be shown during long marches in savanna areas. These frugivores break up into foraging units in which strong cohesion exists mainly in the immediate mother family, although patterns of long-term affiliation are displayed when the independently foraging subunits come together.

*Gorilla gorilla* may be considered a semiterrestrial folivore that has a cohesive group structure. The males appear to be age-graded, with one old, silver-back male as the leader.

**Roles, Group Functions, and Social Structure—Some Selective Advantages**

The interrelations between ecology and social structure in primates deserve further research. The fundamental questions are: Why do some primate species exhibit a multimale troop composition? Why do adult female primates find it advantageous to form extended mother families? In an evolutionary sense, the number of males in a given troop will depend on what advantage the males are to the reproducing females.

It would appear, in comparing the various species of higher primates, that there is a strong trend toward polygyny. Certainly a male increases his individual fitness by distributing his genes among the greatest possible number of females. However, many advantages can accrue to a dominant male through the presence and actions of subordinates. A male's dependence on other males for support in enhancing his survival value will determine, in part, the short-term advantage of having many males in a troop. Nevertheless, if fewer males can do the same task better than many males, then all things will tend to favor a polygynous mating system. Even in a multimale troop it may well be that the descendants of the alpha male would be more predominant within the breeding unit than would those of subordinate males, since subordinate males engage in less sexual activity than do alpha males.

In most species of primates the role of the male involves little parental care. The functions of the adult male, either alone or in company with other males, seem to be: to maintain spacing with respect to neighboring troops of the same species; to reduce competition within the group by driving out younger males; and to enforce some degree of protection against predators. These behaviors may involve vigilance, mobbing, pursuit-invitation displays, or outright attack.

A fourth aspect of the adult male's activities is his role of providing leadership. By initiating and maintaining movement in a certain direction, the male is influential in promoting cohesion of the troop and serves as a focus for the troop's movements.

In contrast to the roles of adult males, the roles of adult females are dominated by infant care. During the early phases of the infant's development, the mother is responsible for protecting it; when the infant enters the juvenile stages, the mother serves as a focus for its socialization.

To some extent, each female old enough to reproduce is in competition with males and other females of the same age class for food, sleeping space, and so on. Nevertheless, certain advantages may be inherent in a group of several females traveling together and maintaining a close liaison. The extent to which individual females benefit from group rearing of their progeny and the extent to which their own chances of survival are increased by associating with other females will determine the size to which the troop can profitably increase.

Ultimately, the size of the troop is, in part, a compromise between competition among members for resources that are in short supply and the advantage of having many members in locating resources that are scattered and available for restricted periods. The interaction between the distribution of primary resources (food and water) in a specific habitat and the population density in that habitat can profoundly affect social structure.

Although we have referred to antipredator behavior as one of the advantages for various social systems, no aspect of primate field studies has

less supportive data than the generalizations concerning the survival value of the various presumed antipredator mechanisms. The primate troop can and does exhibit antipredator behavior. Emphasis on different patterns (including vigilance, alarm calls, distraction displays, mobbing, and attack) may vary between species and between age classes and sex classes within a species.

Only a few individuals in a troop need spend much time in vigilance for all members of the group to be benefited. Typically subadult and adult males perform this role, and troop members may be warned of the presence of a predator by alarm calls. The manner in which monkeys respond to a potential predator depends partly upon their own size and mobility and partly upon the relative size and position of the predator.

**General Conclusions**

When the major radiations in the Old World, New World, and Madagascar are compared with each other, no doubt some of the differences in social structure seen in those species adapted to similar ecological niches will be found to result from phylogenetic differences; that is, the social structures of the ancestral forms have been carried forward in the adaptive radiation of these species.

Although we can generalize about the selective advantages of primate social structures, we must remember that the history of the population under study, its particular adaptation to local environmental conditions, and the idiosyncratic nature of its dyadic relations can result in a great deal of variability in social structure, even within the same species when it occurs in widely differing habitats. Hence, in making generalizations about social structure, we must remember that we are talking about behavioral modes or behavioral medians. More nearly accurate correlations will be possible only when we have more data concerning feeding efficiency and antipredator mechanisms for a wide variety of species, each studied within a range of habitats.

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# The Tornado Threat: Coping Styles of the North and South

**John H. Sims and Duane D. Baumann**

Fortunately for most Americans, their most vivid image of a tornado derives from their memory of the twister weaving across Kansas in *The Wizard of Oz*. But unfortunately for those living in certain areas of the North and South, the tornado is a very real presence. In these locations, the announcement of the tornado watch or the tornado warning are familiar spring messages. The response made to these messages may determine the extent of physical injury an individual suffers or, indeed, whether he lives or dies. This article is concerned with the differences in human response to the threat of tornadoes and with the psychology affecting the nature of those differences.

We begin with this fact: The number of tornado-caused deaths in the South is strikingly higher than it is in the remainder of the nation. What makes this phenomenon perplexing is the difficulty in explaining it.

The most ready explanation is that the South experiences more tornadoes or has a higher population density, or both. Yet when geographic distribution of casualty potentials is compared to the geographic distribution of actual tornado deaths, the two patterns fail to coincide. On the contrary, whereas the highest incidence of tornado-death days is in the South, the casualty potential from tornadoes is found to be highest in a zone running from Dallas, through Topeka and Chicago, to Detroit.

There are other hypotheses. One holds that the South may experience more tornadoes during the night—the argument assumes that a tornado will have a more devastating effect on an unaware population. Five northern States were compared with five southern States in relation to the diurnal distribution of tornadoes during the years 1916 to 1961. Although these data do show a slightly higher proportion of nighttime tornadoes in the South, the average difference is only 3.1 percent and does not approach statistical significance. Furthermore, in other data on the diurnal distribution of tornadoes throughout the United States we find no pronounced incidence of nocturnal tornadoes in the South.

A second hypothesis features another characteristic of the tornado—its strength. Perhaps the South has more violent storms. To explore this hypothesis, we compared ferocity for the tornadoes that occurred in Alabama and Illinois in 1959 to 1968 and found that tornadoes are not more violent in the South: Alabama had more short tornadoes, fewer long ones, and, no matter how it is figured, the average length of path of the Alabama tornado was shorter than that of the Illinois tornado. Not only does Alabama experience fewer tornadoes, but the evidence suggests they are of lesser violence.

Another set of hypotheses shifts the focus in the human environment. A frequently mentioned example stresses the kind and quality of housing in the South. Housing in the South is less substantially constructed. Is it therefore more vulnerable to tornado damage and thus more dangerous? The evidence is conflicting, and no easy generalization relating housing type to tornado casualties is possible. The problem must await further evidence.

Finally, there is the question of differences in the quality of warning systems; the nature and coverage of tornado alert systems may be inferior in the South. However, prior to 1952, no community had the nationwide warning system; yet then, as now, the South recorded the greatest frequency of tornado-caused deaths. And, since 1953, the forecast information from the Severe Local Storm Center in Kansas City has been available to all communities.

Of course, the efficacy of a warning system is not only a function of the quality of its emission. To be effective, a warning must be heeded. It is this consideration that draws the search for explanatory variables away from factors external to man, toward man himself—that is, to man's perception of, and response to, the tornado threat.

**Personality and Cultural Factors**

Man's confrontation with his physical environment is influenced not only by the facts of that environment, but by his ideas and feelings about it, and these, in turn, are influenced by his personality and culture. Could it be that such factors might be involved in accounting, in part, for the higher incidence of tornado deaths in the South?

For our study, this question was reduced to a small scale. A sentence-completion test of 15 stems was designed to identify the ways people cope with the threat of a tornado and to get a measure of a single psychological dimension—the extent to which an individual feels he controls his own life, generally referred to in psychology as "internal versus external locus of control."

It was our judgment that the sense of being autonomous versus the sense of being directed by outside forces was an aspect of personality that promised to be particularly relevant to the question of how responses to tornado threat vary by geographic area.

The sentence completion test was administered to 57 respondents, 33 from four counties in Illinois, 24 from four counties in Alabama. All are white females between the ages of 31 and 60, with at least an elementary school education, and from households with incomes ranging between $5,000 and $10,000. Within each State, the four counties were selected for comparability in respect to past occurrences of tornadoes, potential casualties, and occurrence of tornado-caused deaths.

Of the 15 sentence stems used, statistically significant differences between Illinoisan and Alabamian respondents were found in the completions to eight. Three of these deal directly with the issue of internal-external locus of control; they will be considered first. The other five deal with behaviors related to the tornado experience, although they too are germane to the question of autonomy.

The first stem is "As far as my own life is concerned, God . . ." Although about a quarter of the responses of both groups are idiosyncratic, the majority can be grouped into two categories: those who see God as playing an active, participatory role in their lives and those who see God as a benevolent, protective presence who wards off harm or evil and makes one feel secure, but who does not "interfere" with one's life. This latter conception is congruous with a sense of autonomy, of self-direction, of controlling one's own life. The former acknowledges a force other than self that is actively involved in determining the direction of one's life.

The Illinoisans divide themselves about equally between these "control-

ling" and "noninterfering" images, whereas 59 percent of the respondents from Alabama identify God as an active agent and only 8 percent identify Him as a benevolent but background figure. These data suggest that Southerners place more weight than Northerners on a force external to themselves—God—as a causal agent in their lives. They consequently feel themselves to have relatively less power in the determination of their own futures.

In their completions to the stem "I believe that luck . . .," five times as many Alabamians as Illinoisans identify luck as a major force in their lives. Here, another external force—luck—is acknowledged. Again then, there is the consequent lessening of self-sovereignty, of control of one's own future.

In their completions to "Getting ahead in the world results from . . .," the Alabamians again emphasize their belief in a future controlled by an external force. Less than a third of the Alabamians see success as resulting from their own efforts. In contrast are the respondents from Illinois, two-thirds of whom believe in the Protestant Ethic—success results from hard work, one form of the more abstract conviction that one's future results from what one does himself.

This stem calls attention to what might be called the other side of the coin of autonomy—namely, a belief in one's efficacy. Belief in one's ability to control the future requires confidence that what one does will have an effect, will make a difference, will bring about a chosen end. The Illinoisans' emphasis on work reveals not only a belief system in which self can make choices, but in which self can successfully manipulate reality to effect those choices.

Three of the five stems dealing with aspects of the tornado experience focus on conditions before a tornado strikes. In their completions to the first of these stems, "During the time when a tornado watch is out, I . . . ," Illinoisan and Alabamian respondents differ in several respects. First, they differ regarding the preferred mode of informing themselves on how a possible crisis is progressing. Alabamians favor using one's own senses—they "watch the sky" or "look at the clouds." Illinoisans keep informed by way of the media—they "listen to the radio" or "watch on TV."

At least two factors may be involved in these preferences. First, it is not just metaphorical to speak of the mass media as extensions of one's eyes and ears. It is a characteristic of modern man's psychology that technology is incorporated as a part of self; like information obtained from reading, information acquired from the communications media is standard equipment for coping with reality. To watch the sky rather than listen to the radio, rather than tune in to the social system of information, can be considered psychologically anachronistic.

A second factor that may be at work is the differing attitudes toward technology and authority. That is, implicit in their reliance on radio and television is the Illinoisans' trust in technological expertise, the authority of science, and in man's organized, social power to confront and cope with (if not conquer) nature. But each Alabamian is on his own and faces the whirlwind alone with his God.

This same stem yields minor, but consistent, differences between the two groups: respondents from Illinois, with about five times the frequency of those from Alabama, take specific actions during a tornado watch—for example, seeking shelter, taking pre-

cautions, or alerting others. Such efforts are congruent with a sense of efficacy.

The stem "The best way of identifying 'tornado weather' is . . . " again shows the acceptance of technology almost exclusively in Illinoisans. For the next stem, "The job done by the weather bureau in forecasting tornadoes . . . ," two-thirds of the Illinoisans rate the weather bureau as "good" or better; in contrast to only half of the respondents from Alabama. The trust in expertise (technology fused with authority) felt by those from Illinois is clearly greater than that felt by those from Alabama.

The final two stems deal with the aftermath of a tornado. The first is "The survivors of a tornado . . . " The completions by the respondents from Alabama are preponderantly affective. They stress negative emotions (portraying the survivors as distraught or grief-stricken) or positive emotions (portraying the survivors as grateful and happy to be alive). In contrast, most Illinoisans are either coping-oriented and emphasize the survivors' need for aid, or, interestingly, portray the survivors as "lucky"; that is, they see survival as a matter of chance and not as a matter of fate or of God's will, a very different definition of luck from that of the Alabamians.

The next stem focusing on what happens following a tornado, "A community's response to the disaster of a tornado . . . " presents a situation that is less temporarily immediate and that shifts from an individual to a social perspective. Here the majority of both groups define the community's response as one of helping those in need. What differentiates the groups is a response category unique to the Illinoisans—20 percent of them are sufficiently removed from the shock experience to give responses that comment objectively on psychological phenomena (such as noting that disaster unites people or that it brings out the curious).

Although based upon only a small sampling of behavior of a small number of respondents, these findings and interpretations may be relevant to the disproportionately higher death rate from tornadoes in the South. Fatalism, passivity, and perhaps most important, lack of trust in and inattention to society's organized systems of warning constitute a weak defense against the terrible strike of the tornado.

We are not, of course, arguing that the psychological dimension of internal-external locus of control is the sole, or even the primary, determinant of the tornado death rate. The phenomenon is a result of multivarious forces in combination, of which the sense of locus of control is but one. Other psychological dimensions should be explored, and the traditionally considered factors, such as quality of housing and storm violence, need to be re-examined with more and better data.

Our point is to emphasize the obvious, but so often neglected (or avoided), relation of man himself to the problems of natural hazards. The data and argument presented here constitute an illustration of how man's personality is active in determining the quality of his interaction with nature.

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# Drinking-Water Lithium and Mental Hospital Admission in North Carolina

**A. Wouter Voors**

Dawson and coworkers (*Diseases of the Nervous System,* March 1970) found an inverse correlation between the rate of admissions to mental hospitals and the level of lithium in the drinking water in Texas and concluded that the finding supports the preventive influence of naturally occurring lithium on mental disease. This study was designed to reproduce this investigation for North Carolina.

*Lithium index*—Instead of direct assessment of the lithium level, an index was used—the product of the concentration of potassium and the calcium carbonate (hardness) of the water. The rationale is: A chemical relationship exists between sodium, potassium, and lithium which is reflected in the vertebrate organism. In the drinking water of the 100 largest cities in the United States, the potassium and lithium levels have a correlation coefficient of .748. In North Carolina where both the lithium and potassium levels of 345 water sources have been reported, the correlation coefficient is only .486; hardness was more closely correlated with lithium than with potassium. In order to improve the prediction, the hardness of the water was incorporated into the index.

The hardness and potassium levels of the drinking water of all North Carolina sources for which data had been published were weighted according to population usage for each county separately. For 52 counties not reported and 19 counties only partially reported, the original observation recordings were used. The product of the two values thus obtained was used as the lithium index.

*Hospital admissions*—Data on admissions to State mental hospitals were obtained from the North Carolina Department of Mental Health in the form of reports summarizing the annual admission records. All admissions were classified into first admissions, readmissions, and all admission levels. They were also subdivided into major diagnostic categories: psychosis, neurosis, personality disorders, and a number of minor categories.

The absolute number of admissions and the diagnostic categories were converted into rates of admission and diagnosis. Each absolute value was divided by the population of the county as calculated for the appropriate time period based on the 1960 and 1970 census. All rates were converted to a population base rate per 1,000 population.

All 100 North Carolina counties were ranked according to the lithium index and divided into five quintiles. Attention was focused on extreme groups. In North Carolina, as in Texas, these extreme groups formed two fairly contiguous areas, and are similar in the degree of urbanization and isolation.

The concentration of lithium in the drinking water in North Carolina, as measured directly and as reported, ranged from zero to 0.85 mg. per liter.

The admission rates to State mental hospitals and centers by county of residence were arranged in ascending order of the lithium index for the lowest and highest quintiles only. The difference in mean admission rates between the extreme quintiles, although consistently in the same direction, were less striking than the Texas find-

ings. Likewise, the gradient in admission rates throughout the five lithium-level quintiles was not monotonic as in the Texas data. For the total admission rates, all intermediate quintiles were higher than the extremes, and for the first admission rates, the highest lithium quintiles had lower rates than all others, which showed no clear gradient.

The rates of admission by diagnostic categories were likewise examined. Mean rates for psychosis differed slightly between the extreme quintiles, but in a direction opposite to the hypothesis. Mean rates for neurosis showed a clear difference in the hypothesized direction, and rates for personality disorders showed a slight difference in the hypothesized direction. The gradient in diagnostic rates over the five groups was monotonic only for the neuroses. Personality defect rates were higher in the intermediate quintiles. The percentage of admission rates for psychosis varied least among the quintiles, but the pattern of variation was entirely independent of the lithium levels.

It could be argued that differences in rates of admission are explainable by racial composition. In the low lithium quintile nonwhites compose 11.9 percent of the population, and in the high lithium quintile, 30.5 percent, whereas admission rates of nonwhites in North Carolina are generally lower than those of whites (12.6 vs. 15.8 percent). For this reason the admission rates by diagnosis were subdivided by race. The results show that the gradient of diagnostic admission rates over the lithium quintiles is still present when the two racial groups are considered separately. It also was found that the admission gradient cannot be explained by difference in the age composition between the quintiles. Of course, race and age do not exhaust the number of variables which could account for the difference.

It is difficult to interpret the finding in both Texas and North Carolina that admissions for neurosis are most strongly associated with lithium level in drinking water. Neurosis severe enough to require hospital admission may have aggressive or depressive features related to the monoamine metabolism on which lithium supposedly exerts its influence. It is further possible that in areas of high lithium levels, the human environment acts more permissively on the marginal person with a predisposition to mental disease, whereas in low lithium areas the environment acts more aggressively. Considering neurosis as a milder form of mental illness, it follows that natural lithium intake would manifest itself primarily in such borderline states.

In conclusion, although the strong negative association between water lithium and mental hospital admissions rates found in Texas could not be replicated in North Carolina, the relationship was generally in the same direction.

This study suggests the need for more sensitive instruments to add a new dimension to the measurement of mental health as presently gauged by rates of admission to mental hospitals. More sensitive measurements could further elucidate the function, if any, of low doses of lithium.

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# Malnutrition, Learning, and Intelligence

**Herbert G. Birch**

Newly emerging nations as well as aspiring underprivileged segments of the population in more developed parts of the world have become concerned by the association of social, cultural, and economic disadvantage with depressed levels of intellect and elevated rates of school failure. The effect of these variables cannot be disputed, but it would be unfortunate if we concluded that they represent the whole picture.

In larger perspective the health of the child and his nutritional opportunities assume a position of importance. The nutrition of the individual is the most ubiquitous factor affecting growth, health, and development. A responsible analysis of the problem seeks to define the role played by nutritional factors in the development of malfunction and the interaction of this influence with other circumstances affecting the child.

Malnutrition, or dietary subnutrition, is defined as any impairment of functional efficiency of body systems which can be corrected by better feeding. Chronic subnutrition is accompanied by dramatic manifestations of acute, severe, and, if untreated, lethal malnutrition, particularly in infants and young children. These illnesses reflect caloric deficiency, inadequacy of protein in the diet, or a combination of both.

We shall be concerned with two issues: First, what is the state of sound knowledge of the relation of malnutrition in its various forms to intellect and learning and what is the significance of the evidence for psychology and education. And second, what are the implications of the evidence for improved functioning.

### Growth and Neurointegrative Competence

The most complete study of the relation of growth achievement to neurointegrative competence in children living in environments in which severe malnutrition and chronic subnutrition are endemic is our study of Guatemalan rural Indian children. The children lived in a village having a significant prevalence level of both severe acute malnutrition and prolonged subnutrition during infancy and the preschool years. At school age, relatively well-nourished children were identified as the better grown, and children with the highest antecedent risk of exposure to malnutrition as those with the lowest growth achievements for age. Two groups of children were selected from all village children aged 6 to 11 years. These groups encompassed the tallest and shortest quartiles of height distributions at each age. In order to avoid problems associated with use of intelligence tests as measures of functioning in pre-industrial communities, levels of development in the tall and short groups were compared by means of evaluating intersensory integrative competence. In this method of evaluation children are required to judge whether geometric forms presented in different sensory modalities are the same or different. Competence in making such judgments follows a clearly defined developmental course in normal children in the age range studied. At all ages taller children exhibited higher levels of neurointegrative competence than did the shorter group. Overall, the shorter children lagged 2 years behind in the competence which they

exhibited in processing information across sensory systems.

Another study examined an aspect of neurointegrative competence and auditory-visual integration. Once again malnutrition differences in growth achievement at school age were reflected in differences in auditory-visual integration favoring the taller children. These findings are important because of the demonstrated association between such competence and the ability to acquire primary reading skill.

Similar findings were obtained in Indonesia and South Africa. In the Indonesian study scores of 107 children on the WISC and Goodenough tests showed a clear advantage for the better-grown and better-nourished children; moreover, the largest deficits in IQ were associated with the poorest nutritional status. In the South African study, the malnourished children had a mean IQ 22.6 points lower than that of the adequately nourished group; these differences were sustained through adolescence.

Comparative studies of differential cognitive achievement in better and less well-nourished groups have been supplemented by followup evaluations of children who had been hospitalied for serious nutritional illness (marasmus or kwashiorkor) in infancy. Marasmus is a disorder produced by an insufficient intake of proteins and calories in the first year of life. Kwashiorkor—a syndrome produced by inadequate protein intake accompanied by a relatively adequate caloric level—is more common in the postweanling between 9 months and 2 years of age. In Yugoslavia, children who suffered from such severe nutritional illnesses exhibited delays in language acquisition and reduced IQs. An Indian study of 19 children between 18 and 36 months of age treated for kwashiorkor showed significantly depressed IQs in these severely malnourished children.

**Comparisons with Siblings**

In order to control more fully for differences in the child's genetic antecedents microenvironment, we compared children previously malnourished in infancy with their siblings as well as with children of similar social background. In the first of these studies intelligence at school age was compared in 37 Mexican children hospitalized for kwashiorkor between the ages of 6 and 30 months. The siblings had never experienced malnutrition requiring hospitalization. Sibling controls were all within 3 years of age of the index cases. Full-scale WISC IQ of the index cases was 13 points lower than that of the sibling controls. These findings agree with those of the Yugoslav and Indian workers.

In the second study, 74 male Jamaican children hospitalized for severe malnutrition before 2 years of age were compared with their brothers nearest in age and with their classmates whose birthdate was closest to their own. All children were between 6 and 11 years of age at followup. Neurological status, intersensory competence, intellectual level, and language, perceptual, and motor abilities were evaluated. Intellectual level was significantly lower in the index cases than in the siblings or the classmate comparison groups; the order of competence placed the classmate comparison group at the highest level, the index cases at the lowest, and the sibs at an intermediate level. The index cases and sibs are similar in that they share a common chronic exposure to subnutrition and differ in that the index cases have experienced a superimposed episode of acute nutritional illness as well. The use of sib-

ling controls determines whether siblings who differ in their degree of exposure to nutritional risk differ in intellectual outcomes and supports the view that graded degrees of malnutrition result in graded levels of intellectual sequelae.

**Followup Studies**

In Mexico the developmental course of returning competence in children hospitalized for malnutrition was studied during the period of their treatment and recovery while in the hospital. The findings indicated that behavioral recovery was less complete in the youngest children (hospitalized before 6 months of age) than in older children, posing the possibility that this earliest period of infancy was the one most critical for insult to developing brain and thus to eventual intellectual outcome. However, a study of Jamaican children having experienced an acute episode of malnutrition in the first 2 years of life showed an equivalent depression of IQ in each of the groups when these were separated by age at hospitalization.

In Lebanese, Peruvian, and Venezuelan short-term followup studies depression in intellectual level tended to be found in the index cases. In an American study and in a Chilean study the findings have shown depression in intellectual function in the preschool years in children hospitalized for malnutrition during the first year of life. All these studies strongly suggest that malnutrition of severe degree in early life tends to depress the intellectual functioning at later ages.

**Defining the Causal Linkage**

Three possibilities must be considered in the effort to define a causal linkage. The simplest hypothesis would be that malnutrition directly affects intellect by producing central nervous system damage. However, it may also contribute to intellectual inadequacies as a consequence of the child's loss in learning time when ill, of the influences of hospitalization, and of prolonged reduced responsiveness after recovery. Moreover, it is possible that particular exposures to malnutrition at particular ages may interfere with development at critical points in the child's growth course and so provide either abnormalities in the sequential emergence of competence or a redirection of developmental course in undesired directions. Although certain of these possibilities (such as hospitalization and postillness opportunities for recovery) can be explored in children, it is not permissible to establish appropriate experimental models either for interfering with development at critical periods or for inducing brain damage. The approach to these problems requires either detailed analyses of naturally occurring clinical models or the development of appropriate animal investigations.

**Animal Studies**

Animal models have demonstrated that both severe and modest degrees of nutritional deprivation experienced by the animal at a time when its nervous system was developing most rapidly results in reduced brain size and in deficient myelination. These deficits are not made up in later life even when the animal has been placed on an excellent diet. Recent studies have demonstrated that the deprivation is also accompanied by a reduction in brain cell number. This effect has also been demonstrated in human brain in infants who have died of severe early malnutrition. Enzymatic maturation and development in brain is also affected, as demonstrated by defective enzyme organization in the brains of malnourished organisms.

Evidence indicates that the effects of malnutrition vary in accordance with the time in the organism's life at which it is experienced. In some organisms the effects are most severe if the nutritional insult occurs in the prenatal period, in others during early postnatal life. In pig brain, growth and differentiation occur most rapidly in the period prior to birth; in the rat the most rapid growth occurs when the animal is a nursling; in human beings the period for rapid growth extends from mid-gestation through the first 6 through 9 months of postnatal life. In man, the brain goes from 25 percent of its adult weight at birth to 70 percent of its adult weight at 1 year of age. Differentiation as well as growth occurs rapidly during the critical periods, with myelination and cellular differentiation tending to parallel changes in size.

Since brain growth in different species occurs at different points in the life course, deprivations experienced at the same chronological ages and life stages have different effects in different species. Thus deprivation during early postnatal life will have little or no effect upon brain size and structure in an organism whose brain growth has largely been completed during gestation. Conversely, intrauterine malnutrition is likely to have trivial effects on the growth of the brain in species in which the most rapid period for brain development has occurred postnatally. When these factors are taken into account, the data leave no doubt that the coincidence of malnutrition with rapid brain growth results in decreased brain size and in altered brain composition.

Other workers using animal models have studied the effects of malnutrition on behavioral outcomes rather than on brain structure and biochemical organization. Animals raised upon diets inadequate with respect to certain food substances, or in which general caloric intake has been reduced without an alteration in the quality of the nutriments, have been compared with normally nourished members of the species on maze learning, avoidance conditioning, and open field behavior. Though in general the nutritionally deprived organisms have been disadvantaged as learners, it is not clear whether this is the result of their food lacks at critical points in development or from the different handling, caging, and litter experiences to which the well and poorly nourished animals were exposed. In a number of studies food or avoidance motivation has been used as the reinforcers of learning. There is evidence that nutritional deficiency in early life affects later feeding behavior. Consequently, it is difficult to know whether the early deprivation has affected food motivation or whether is has affected learning capacity.

**Nutrition of the Mother**

Thus far we have been considering the direct effects of nutritional deprivation on the developing organism. Nutritional influences may be intergenerational and the nutritional history of the mother may affect the intrauterine and birth exxperiences of the offspring. A study in Scotland compared one group of stunted women with well-grown women and found that 34 percent of the shorter women had abnormal pelvic shapes conducive to disordered pregnancy and delivery as compared with 7 percent of the well-grown women. The rounded or long oval pelvis which appears to be functionally superior for childbearing was more common in well-off, well-grown women than in

economically less-privileged clinic patients. It was further noted that these pelvic abnormalities were strongly associated with shortness which was five times as common among lower-class women than in upper-class women and was associated with reproductive complications.

In analyzing the reproductive performance of more than 13,000 first deliveries fetal mortality rates were more than twice as high in women who were under 5 feet 1 inch in height than in women whose height was 5 feet 4 inches or more. It was demonstrated that premature births were almost twice as common in the shorter than in the taller group and that short stature in the mother was strongly associated with high rates of prematurity, delivery complications, and perinatal deaths at each parity and age level. The conclusion was that the fetus of the short woman has less vitality and is less likely to be well-grown and to survive than that of the tall woman. Shortness in every social class was associated with an elevated rate of both prematurity and perinatal deaths. Findings in Britain, Hong Kong, China, and West Africa have substantiated the Aberdeen findings that an inadequate nutritional background in the mother places her child at elevated risk for damage and prematurity at delivery.

On the basis of the evidence it may be argued that one can reasonably construct a chain of consequences starting from the malnutrition of the mother when she was a child, to her stunting, to her reduced efficiency as a reproducer, to intrauterine and perinatal risk to the child, and to his subsequent reduction in functional adaptive capacity. Animal models have been constructed to test the hypotheses implied in this chain of associations, and the findings indicate that second and later generation animals who derive from mothers who were nutritionally disadvantaged when young are themselves less well-grown and behaviorally less competent than animals of the same strain deriving from normal mothers. Moreover, the condition of the offspring is worsened if nutritional insult in its own life is superimposed on early maternal malnutrition.

A variety of factors would lead us to focus upon the last month of intrauterine life as one of the "critical" periods for the growth and development of the central nervous system. Both brain and body growth, together with differentiation, are occurring at a rapid rate; the last trimester of intrauterine existence may outstrip maternal supplies. Maternal conditions during this period of the infant's development contribute most influentially to low birth weight and prematurity. We have no definitive answer to the question of the degree to which maternal nutrition during pregnancy contributes to pregnancy outcome. Clearly, whether or not nutritional lacks experienced by the mother during pregnancy will affect fetal growth is dependent upon the size and physical resources of the mother herself. Well-grown women are most likely to have tissue reserves which can be diverted to meet the nutritional needs even when pregnancy is accompanied by significant degrees of undernutrition. Conversely, poorly grown women with minimal tissue reserves could not under the same set of circumstances be expected to provide adequately for the growing infant.

**Later Nutritional Inadequacies**

Children coming from families in which the risks for exposure to malnutrition are high are unlikely to experience nutritional inadequacies only

in early life. It is far more likely that earlier nutritional inadequacies are projected into the preschool and school years. At an indirect level it can be argued that family diet in the main is very much dependent upon family income level. According to a household survey in 1965, the proportion of poor diets increased with each reduction in income level, with 18 percent of the families earning under $3,000 a year reporting diets containing less than two-thirds of the recommended allowance of one or more essential nutrients. Conversely, the proportion of "good" diets went from 63 percent in the $10,000 and over category down to 37 percent in the $3,000 group. Of course, income alone is not an adequate indicator of socioeconomic status since in families with equal incomes, more education appears to produce a better diet.

**Implications, Programs, and Problems**

Evidence indicates strongly that nutritional factors at a number of different levels contribute significantly to depressed intellectual level and learning failure. Both severe acute malnutrition in infancy as well as chronic subnutrition from birth into the school years results in defective information processing. Thus, by inhibiting the development of a primary process essential for certain aspects of cognitive growth, malnutrition may interfere with the orderly development of experience and contribute to a suboptimal level of intellectual functioning. Moreover, an adequate state of nutrition is essential for good attention and for appropriate and sensitive responsiveness to the environment. One of the most obvious clinical manifestations of serious malnutrition in infancy is a dramatic combination of apathy and irritability. The infant is grossly unresponsive to his surroundings and obviously unable to profit from the objective opportunities for experience present in his surroundings. This unresponsiveness characterizes his relation to people, as well as to objects. Behavioral regression is profound, and the organization of his functions are markedly infantalized. One of the first signs of recovery is an improvement in mood and in responsiveness to people—"the child who smiles is on the road to recovery."

In children who are subnourished one notes reduction in responsiveness and attentiveness. They are easily fatigued and unable to sustain either prolonged physical or mental effort. Improvement in nutritional status is accompanied by improvements in these behaviors as well as in physical state.

It should not be forgotten that nutritional inadequacy may influence the child's learning opportunities by yet another route—nutritional inadequacy increases the risk of infection, interferes with immune mechanisms, and results in illness which is both more generalized and more severe. The combination of subnutrition and illness reduces time available for instruction and, by interfering with the opportunities for gaining experience, disrupts the orderly acquisition of knowledge and the course of intellectual growth.

Note: The review article on which this condensation is based has a 97-item bibliography.

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# Mental Health in the Hi-Rise

**Daniel Cappon**

To my knowledge, there is no incontrovertible evidence that apartment living, even in the hi-rise, produces impairment in mental health. Some reasons for this are: Mental health has not been defined operationally; impairment of mental health is too gross a condition to be a demonstrable reaction to hi-rise apartment living; crucial operational factors in the hi-rise apartment environment have not been satisfactorily defined; and the proper questions, funds, and expertise have not been applied to a definitive study. The experimental design of such a man/environmental study is difficult because of the interdependency, complexity, and number of psychobiological, psychosocial, and environmental variables involved.

### Definitions and Delineations

Mental health signifies the absence of mental illness, an ability to adapt personally and collectively to the environment, and an ability to mature and fulfill potentials. It means, most importantly, living in homeostatic balance and changing, according to appropriateness of adaptive demands. Such balance would make one aggressive but not hostile, generous but not gullible, tolerant but not weak, individuated yet also socialized. It also means possessing a stable identity, yet sufficient flexibility to be relatively unpredictable in unusual circumstances. The most basic of these characteristics should be extensible from the individual to society, although society or the group does constitute an entity, so that it is likely to have pertinent characteristics of its own.

I suggest that the following items might yield an index of social malaise:
Psychiatric—psychotic rate, need for psychiatric care, suicides, sexual deviance, drug usage, alcoholism, accident proneness, etc.;
Social—family breakdown, runaway children, child neglect, marital breakdown, desertion, and one-parent households;
Criminological—homicides, arrests, crimes of violence, sexual deviates, arrested drug users;
Medical—infant mortality and morbidity, nutritional deficiency, venereal disease, tuberculosis, poor dental care, illegitimate pregnancies and abortions;
Economic—families at poverty lines, unemployment rates;
Educational—dropout rates, and percentage of adults with 8 years or less of education.

Among the indices of social disorganization are amounts of disaffiliation, discrimination, major schism, protest, dissent, and alienation reflecting gaps between groups.

Finally, among the indices of health and successful urban living I suggest comfortable heterogeneity; easy circulation, transportation, and general mobility; control of pollution and of erosion of natural resources (including the human); awareness with appropriate concern-action; absence of environmental cleavages; diversity of economic endeavors and access to distribution and execution of political power. Other important indicators of urban health or success are: diversity and fitness of cultural and communication networks; physical fitness in the populace; availability and use of leisure time activities; safety with comparatively little police intervention; neighborliness and the presence of neighborhoods; and the ability to emit and receive information, quickly and well.

Hi-rise apartments certainly appear simpler to define operationally, yet there is no final agreement about them either. I would class a hi-rise as so high that a mother cannot recognize the face of her own child in the street below—probably beyond 50 feet, or upward of some four stories. In a research design the apartment factor would have to be controlled in terms of floor space, ownership, circulation, access to other significant environments, age of onset of occupancy, and duration of occupancy. In terms of floorspace, crowding, and confinement, it has been known for some time that man can adapt to small spaces for a considerable time without adverse psychological effect. With respect to the symbolic significance of the environment, it is known that a family tends to regard an apartment as a temporary abode, whereas a single family dwelling is a home. Moreover, height alone in an apartment is not the only external physical dimension which has significance. Massivity derived from breadth, the number of inhabitants in the complex, distance from other types of housing, and location—all these have important environmental, perceptual, attitudinal, and therefore behavioral consequences.

Last but not least, the subjects' expectancy must be taken into account, both at the micro and macro level, and we must differentiate livability from comfort and desirability.

**Research Design**

Out of these considerations could come a design for a definitive study, both retrospective and anticipatory or longitudinal. The crucial comparison would be between clearly defined hi-rise and non-hi-rise environments, matched or controlled for significant environmental characteristics. The populations must be carefully matched in terms of the psychosocial characteristics, especially those likely to have a direct effect on mental health. The measurements of mental health must be carefully defined and indexed, with emphasis on the fine-grain aspect of mental health (or social malaise) outlined.

Even then, the study would be pointless if it merely indicated an adverse overall effect in the mental health of hi-rise dwellers; it should indicate the environmental genesis of this effect in terms of attitudes and behavior. This would be of relevance to the physical and social designer, both for new dwellings and for the modification of existing dwellings. There is evidence that what matters is not the actual environment, but the perceived environment.

Finally, a responsible study would have to be sufficiently ongoing and dynamically oriented over time, to take cognizance of change in the environments, in acceptability, and in social attitudes. This means building into the studied environments a data-yielding instrument which will portray changes in mental health and in environmental and attitudinal changes. In this way, physical and social builders will be continually aware of the mental effects of their activities, and the user would be firmly placed in the design loop.

**Rationale for Studying the Hi-Rise**

There is every reason to believe that hi-rise apartment dwelling has adverse effects on mental and social health. And there are sufficient clinical, anecdotal, and intuitive observations to back this up. Herewith, in no particular order are some factors:

In my experience as Mental Health Director in a child guidance clinic in Toronto for 5 years, I saw numerous children who had been kinetically de-

prived by not being allowed to run around and stamp their feet for fear of noise, of the neighbors, and of the landlord. And kinetic deprivation for a young child leaves legacies of lethargy or restlessness, antisocial acting out or withdrawal, depersonalization or psychopathy.

Young children in a hi-rise are much more socially deprived of neighborhood peers and activities than their counterparts in single family dwellings; hence they are poorly socialized and at too close quarters to adults who are tense and irritable as a consequence.

Adolescents in a hi-rise suffer more from the "nothing-to-do" ennui than those in single family dwellings; they have needs for "drop-in centers" and a greater tendency to escapism.

The struggle for identity in the massive sameness of a hi-rise is greater than in a variety of single family dwellings.

The male in a hi-rise suffers from deprivation of masculine outlets and is forced into sharing feminine household duties.

Mothers are more anxious about their young ones when they can't see them in the street below.

There is higher passivity in the hi-rise because of the barriers to active outlets on the ground.

Anomie and alienation increase with the height and massivity of apartments, though this has to be scrutinized in terms of the population at risk and the location.

When I was in Caracas, Venezuela, to study whether the poverty stricken squatters were happier than the comparatively affluent residents of the American inner city, I found that they were, until placed by government edict into hi-rise public housing. Then they broke down psychosomatically and became politically menacing.

Sharing walls with a high sound conductibility leads to a high annoyance index in the hi-rise. There is every reason to believe that high vertical walls do a prison make, particularly for the young child, the old, and the adolescent. Hi-rise also affects, in terms of environmental perceptual monotony, the man for whom office and apartment are practically indistinguishable. Social and political participation is minimal in the hi-rise. Because of all this, plus their passivity and dependence on a landlord, permanent hi-rise dwellers are likely to be inadequate, indifferent, and coddled, leaning heavily on the welfare state.

Moreover, hi-rise buildings massed together cut off our sun and create unbearable, car-polluted canyons assaulting our sense and sensibilities as earthlings.

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# The Sociology of Odors

**Gale Peter Largey and David Rodney Watson**

Universally, human animals are simultaneously emitting and perceiving odors. Ethologists, psychoanalysts, and biologists have studied the phenomenon, but, by and large, sociologists have ignored odors or regarded them as an insignificant dimension of human interaction.

### Odors and Moral Status

Much of the moral symbolism relevant to interaction is expressed in terms of olfactory imagery. An untrustworthy person may be described as a "stinker," a "stinkoe," or a "stinkpot." A holy or pure person may be described as emitting the "odor of sanctity." Groups may be termed "smelly and slovenly" or, on the other hand, "clean and orderly." Particular odors, whether real or alleged, are used as indicants of the moral purity of individuals and groups, the consequences of which are indeed real.

For example, when intermediaries arrange an Arab marriage, they often smell the girl and will reject her if she "does not smell nice." It has been said that priests are able to perceive whether a woman is a virgin by her odor. Historians inform us that during the Middle Ages perfumers were suspected of "moral laxity." Also, it was held that religious persons could ascertain the specific virtures and vices of those they met by the odor that was emanated.

Anthropologists have afforded some examples of the association of odors with "purity." For instance, a diviner within the Nguni tribe seeks out cannibals and necrographers with his nose, for they have the smell of flesh on their fingers. The nose-kissing practices of the Eskimoes and other so-called primitive groups are usually associated with the mutual expression and assessment of character.

In modern societies there are many examples. Many men of the labor class associate cologne on a male with effeminacy. By the same token, a white-collar worker may express repugnance toward those who emit a "stinky sweat" or who "smell like a farmer"—dirty and unclean.

There are also echoes of the Middle Ages: "she smells like a whore," the implication being that a heavily perfumed woman is likely to be promiscuous. Advertisers try to create a social consciousness that "bad breath," "ugly perspiration," or the "feminine odor" are signs of a contaminating character, a woman who rudely affronts others.

The linkage between one's olfactory identity and one's moral state is referred to in the scientific, as well as the fictional, accounts of human life. For example, a social psychologist, in writing of a youth club, describes a "problem member" as smelly and dirty. The individual stank physically and therefore morally.

Finally there is the "fart taboo," that is, the rule of etiquette which restricts flatus. It is so widely agreed upon that etiquette books do not even discuss it. Curiously, social scientists have not touched upon the taboo, but its significance in human interaction is often portrayed in novels.

In short, odors, whether real or alleged, are often used as a basis for conferring a moral identity upon an individual or group. And certainly such moral imputations bear upon the processes of human interaction. Let us next consider olfactory boundaries and the patterns of avoidance

and attraction as they are generated through olfactory definitions of individuals, groups, and settings.

**Odor-Avoidance and Odor-Attraction**

A skunk is a symbol of avoidance, whereas a rose is a symbol of attraction. Upon encountering a skunk most persons maintain distance and warn others nearby of potential contamination. But if one smells a rose, he is attracted toward it and invites others to smell and admire its aroma.

*Avoiding the skunk*—From the sociological standpoint, the "skunk" may be an individual, a group, or even a setting, that is, a physical environment. If we encounter an individual "skunk" (e.g., a person with "bad breath"), it is accepted that we may step back so as to prevent further violation of our sense of smell. Usually, we mentally label such a person, and we may extend our discreditation by informing others that the person has a "problem." Strangely, the person himself is seldom confronted about his "problem" because of the embarrassment it would cause the dishonored self to embarrass the dishonoring one. Nonetheless, if sensorial involvement were disrupted repeatedly, social involvement would become jeopardized—particularly in modern societies in which there is a growing consciousness of odors.

The "skunky group" has other sociologically interesting aspects. Stereotypes and the dynamics of prejudice often derive from alleged, as well as real, odors given off by particular groups. Indeed, odors may be the insurmountable barrier to close interracial and/or interclass interaction, and they are repeatedly referred to in order to account for avoidance patterns and segregated ecological niches. In Poland, for instance, anti-Semitism is often expressed in terms of the odor of garlic. Racial prejudices seek credence by reference to the malodor of the minority group. In fact, alleged malodor is a crucial component in the white racist's conception of Negroes—so much so that a hypersensitivity to or fastidiousness about body odors may become evident. Class prejudices are equally supported by imputations that those of the lower class are "foul smelling" and must be avoided. It might be added that, given the subjective nature of olfactory perception, the simultaneous process of social interpretation of these perceptions, and socially generated and maintained stereotypes influencing both these factors, the allegation of the malodor of a group member can be imputed a priori rather than "accurately" perceived, and our interpretation of the meaning of the odor may not reflect the condition or the customs of either the individual or his group. Hence, social distance may be maintained by conventionally imputed, rather than "actually perceived," impressions of malodor.

Finally, there are the urban-rural stereotypes. In Western societies urbanites may be heard identifying farmers with manure or "earthy-dirty" work, while the farmer may label the urbanite as "artificial-smelling," perfumed, or factory-smelling.

As with individuals and groups, we are also prone to identify certain settings or physical environments in terms of real, as well as alleged, odors; and we seek to avoid them. Consider the avoidance feelings and patterns generated by the odor of a dentist's office, an unkempt greasy-smelling restaurant, or a smoke-filled tavern. Note the tendency to associate mental hospitals and wards for the elderly with the odor of urine. Likewise, land use and development may be impaired in communities where the odors of a cannery, glue factory, brew-

ery, tannery, or paper mill dominate the setting. Too often in their concern with the political and economic institutions of a community, social scientists overlook its sensorial aspects—whether they be visual, auditory, or olfactory.

Also, the different odors of dentists' offices and taverns help express the primary function of those settings. A dentist's office smelling of beer, whiskey, and stale cigarette smoke would cause suspicion or anxiety among the clients. The odors would undermine implicit social expectations involving the social meanings of trust in the dentist's professional responsibility, integrity, or competence. Thus, odors function partly to maintain the boundaries of social settings or the appropriateness of the relationships engendered within the setting.

*Smelling like a rose*—While "skunks" are to be avoided, "roses" suggest intimacy; and the individual who emits attractvie odors relates effectively on at least one sensorial level. This fact is evidenced by the importance placed on odorizing and deodorizing rituals, as well as such practices as sending flowers or scented letters to one's lover.

Smelling, however, is not restricted to individual "roses." We also like bouquets. In other words, there are grounds for hypothesizing that group intimacy or alignments are partially established or recognized through olfactory stimuli. The practices of nose-kissing and sniffing among Eskimoes, Samoans, and Phillipine Islanders are not simply salutary gestures. They are means of group identification and cohesion. And possibly, those odors that serve as indicants for avoidances by outgroups generate a we-feeling in the ingroup. One may hypothesize that the odor of garlic, which constitutes a component of the anti-Pakistani complex among the British, may contribute to an ingroup identification among the Pakistanis themselves.

Finally, there is the "rose garden," that is, the odor setting that attracts and facilitates interaction. While we have avoidance feelings toward urine-smelling asylums, we are drawn to pine-scented parks; while we are disgusted by canneries, we are enticed by bakeries; while we find cesspools and polluted streams repugnant, we delight at beaches permeated by the smell of salt and sand. An odor is often a crucial component in the definition of, and orientation to, an environment and is instrumental in generating appropriate activity. While odor settings may be taken for granted in an unreflective manner, they are nonetheless cues to particular modes of involvement within the setting.

**Impression Management through Odors**

Since odors do bear social meaning, it is not surprising that various practices have developed by which olfactory identity and odor settings may be manipulated. Cross-culturally and historically one may observe efforts to "give off" a creditable odor. Likewise, there are efforts to create a desirable odor setting.

To establish and maintain a socially accepted olfactory identity, there are two practices: deodorizing and odorizing. The first entails the removal of socially discreditable odors through such activities as washing, gargling, and cleansing of teeth, with particular concern about removal of perspiration. Odorizing involves presentation of self with accreditable odors through the "art" of perfuming. The rationales for deodorizing include "health" and "cleanliness," while those for odorizing include "being fresh and pleasing to others."

One's olfactory identity is particularly associated with racial, class, and sexual identification and perfuming is

closely related to the presentation and manipulation of those identifications. It has already been observed that racial minority groups are often stigmatized in terms of odors. In order to cope with their stigmatization Negroes engage in widespread use of perfume. Unfortunately it might be that the perfuming is seldom effective. Instead, it may reinforce the white racist's belief that Negroes stink: If they didn't stink, they wouldn't have to cover themselves with perfume.

Like racial identity, class identity is often imputed in terms of odors. Deodorizing-ordorizing practices to avoid being "foul-smelling" and thus associated with the lower class remain widespread. And, as with racial minority groups, it appears that the lower class often utilizes a great deal of perfume to avoid stigmatization—so much so that the lower class is sometimes described as being "scent smothered" or "daubed in cheap perfume," "cheap" being a term used to imply lower class.

At the same time, the middle and upper classes support their status position by the appropriate use of "expensive perfumes," perfumes that symbolize high status. These perfumes are known through their advertisements in middle- and upper-class magazines. Often these advertisements are associated with an aristocratic tradition, suggesting, for instance, that Cleopatra or Queen Elizabeth used the perfume.

Historically, perfuming has also been associated with the enhancement of one's sexual attractiveness; the belief that perfumes are erotic stimulants persists in most societies. In modern Western societies perfumes are widely used by both men and women, and odorants are usually added to toothpastes, shaving lotions, hand lotions, soaps, and hair oils. Moreover, if advertising appeals indicate the legitimatizing motives for their use, then odorants are worn to enhance sexual identification. Consider the advertisements of men's colognes: "Starts the kind of fire a man can't put out"; "It can't talk but women get the message"; "Uncorks the lusty life"; "Gives any man license to kill . . . women." Many advertisements for women's perfumes express a similar message: "Want him to be more of a man? Try being more of a woman"; "The forbidden fragrance"; "What makes a shy girl intimate?"; "To summon a man, push this button"; "Genteel, earthy, provocative, poignant. The very mystique of a woman." The extent to which a motive offered in an advertisement serves as a legitimatizing rationale for the use of a particular perfume needs further study; nonetheless, it can be hypothesized that a relationship does indeed exist.

The context within which people act sometimes influences behavioral patterns. Like olfactory identity, odor settings are subjected to manipulation. The odor of whole communities is sometimes described as "stinky"; and the label may be detrimental to the image and development of the community. It is understandable that efforts have been made to control or alter the odor of communities.

In 1969, Washington, D.C. adopted an air pollution code which outlawed odors injurious to the public welfare, the definition of welfare including reasonable enjoyment of life and property. To enforce the case the city acquired a scentometer, a scientific device for calibrating "stink." Other communities have adopted similar procedures. Each time the argument was: "Getting rid of the odor will stimulate a growth of the community through a more pleasant and healthy environment."

While communities are often concerned with deodorizing a setting to

create a more esthetic environment, other efforts have been made to odorize settings. For example, odorants were applied in the Roman Colosseum during gladiatorial games, the intent being to create a communal or we-group feeling. The Chicago White Sox baseball organization has attempted to spray the scent of hot buttered popcorn in its stadium because that "makes people feel good"; and at the 1964–65 New York World's Fair, the India exhibition was presented with the manufactured scent of curry and cows.

The use of incense is another example of the management of an odor setting. Religious groups have traditionally used incense to create an "odor of sanctity" and an atmosphere of "sacredness." The deodorizing and/or odorizing of other settings such as theaters, supermarkets, home, and rooms might also be considered. Again, each setting has a socially expected or desirable odor. Thus we find widespread use of aerosols as, for example, in the seasonal application of pine and spruce scents to convey "the spirit of Christmas."

Finally, odors are sometimes used to control, rather than please, a group within a setting. Development of aerosols to regulate crowd behavior may be expected.

While much of this paper has been impressionistic, we feel that it points to a need for the study of a neglected field of sociological analysis. The sociology of odors and olfaction should develop as one part of a more general sociological concern with the senses.

Areas for research include: What is the relation between life style, bodily state, and odors? What sociocultural conditions function to repress and which to elicit a consciousness of olfactory stimuli? What are some of the historical and cross-cultural differences and similarities in "odor consciousness"? What are the relations between "odor consciousness" and social development? What are the psychosocial dynamics involved in the definitions and/or identifications of olfactory stimuli? What are the social dynamics supportive of odor control and manipulation? Why do interactants perfume themselves? What taboos operate in the area of odor control and manipulation?

What are the relations between perceived odors and "labeling" or "social typing" (e.g., "stereotyping")? Under what conditions do olfactory perceptions involve a more personal and intimate identification with others? Under such conditions, how effective are odors in the generation of an intersubjective "we-feeling," or a less detached, atomized, or objectified awareness of others?

What effect does a negatively defined olfactory perception have upon spatial considerations such as the establishment of personal space and spatial arrangements of interactants? What effect do olfactory perceptions have upon ecological processes and land-use patterns within the larger society?

In short, how do interactants become conscious of how to feel about or define a given odor perceived to emanate from a given other in a given social setting at a given time?

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# What's So Hot About Red?

**Corwin A. Bennett and Paule Rey**

A popular hypothesis (the "hue-heat" hypothesis) is that lights or surfaces whose dominant frequencies are toward the red end of the visual spectrum are "warm" and those toward the blue end are "cool." For example, one might paint a thermally cool basement room yellow to make it "seem warmer." This is a common design practice.

This hypothesis falls in the category of potential interactive environmental effects, that is, the area of possible effects on thermal comfort of one set of environmental parameters, thermal conditions, interacting with another environmental parameter, hue. Despite the prevalence of popular belief in the hue-heat hypothesis, virtually all thermal and visual research has dealt with only one parameter or the other. If either thermal or visual experts were to judge, most would predict that such interactive effects are small compared to the direct effects of thermal or visual parameters on heat or visual reactions.

Thermal comfort research has demonstrated that observers can distinguish several subjective thermal states ranging from "hot" to "cold." It is probable, however, that such judgments will differ depending upon whether thermal conditions are becoming hotter or colder. In this study, multiple-criterion thermal judgments were obtained for both ascending and descending temperature conditions. Because of the relatively precise control which can be effected with radiative temperature as opposed to air temperature, this means of producing thermal changes was employed.

The experiment was carried out in an environmental test chamber. The interior walls are aluminum panels with surface temperatures controlled by circulating heated or chilled water through copper tubes attached to the back of each panel. Changes in thermal conditions were produced by changing wall temperatures. The range of wall conditions was 58.5°F.

Several means of varying hue were considered and rejected for economic reasons. Finally, inexpensive transparent colored plastic was placed in goggles worn by the subject. A "blue" plastic had major transmittance peaks at 355 and 470 nanometers. A "red" plastic had its primary transmission above 650 nanometers. Simple light meter measurements under a cool white fluorescent source yielded transmittance measures of 0.30 for the blue and 0.23 for the red plastic. No filter was used as a third, "clear" condition.

Subjects were run in groups varying in size from one to six. Data were gathered during November and December during which daytime outside temperatures ranged between 20° and 40°F. Subjects removed coats, jackets, and sweaters and then were seated in the environmental chamber for periods of 5 to 15 minutes prior to testing. Seats were metal folding chairs placed parallel to and 6 inches from the wall so that no two subjects faced each other.

Subjects were told that they were participating in a study of thermal comfort, wherein they were to record their feelings of comfort on occasions directed by the experimenter, according to the following scale: 1—cold; 2—cool; 3—slightly cool; 4—comfortable; 5—slightly warm; 6—warm; and 7—hot. Three experimental runs would be made, during each of which

the wall temperature would be low, then be increased and then decreased. The subjects were told that they would wear goggles during the experiment and also were told not to talk during runs, since independent ratings were desired.

At 1-minute intervals, the experimenter called out the time, which subjects recorded along with their comfort ratings. At the completion of a run, the experimenter entered the chamber and redistributed the goggles. Subjects wore different colored goggles on each of three runs, with random sequences used to equalize the use of each colored goggle on each of the three runs.

The primary data were the wall temperatures from areas adjacent to each subject on each occasion that the subject changed his thermal-response judgment. Thus, on the ascending run, if a subject were initially to judge the conditions to be "cold," at some point he would judge that the conditions were not "cool." Similarly as wall temperature increased, there would be a point where judgment shifted from "cool" to "slightly cool," to "comfortable," and so on up to "hot." During the descending series this sequence should reverse.

Hue did not produce any observable effect on thermal-comfort judgments. Indeed, the ranges of means for different goggles for the various thresholds were remarkably small. The order of mean temperatures, which by the hue-heat hypothesis should have been from lowest to highest—red, clear, blue—was never completely observed.

The failure to find hue effects might have been due to a number of factors. Luminance was not closely controlled. The intensity of light may have its own thermal-comfort effects which obscure hue effects.

There also is the question of how possible thermal responses to hue are to be assessed. While direct comfort judgments are appropriate for some purposes, they may not be sensitive indicators for the hue-heat effect.

Further, one might question the suitability of these experimental conditions. Hue is normally produced by wall and furnishing treatments and illumination rather than eye coverings. Heating is more likely to be produced by changing air temperature than by radiative changes.

These conditions might limit the generality of the research as a test of the hue-heat hypothesis, but their imposition would also limit the generality of any such hypothesis. Interior designers probably seldom think of using color to "warm" a space for only certain light levels, color saturations, durations of occupation, and means of heat production. Furthermore, taking the several hue-heat experiments collectively, the hue-heat hypothesis has failed under a variety of conditions. The puzzle remains: Shouldn't such a pervasive belief be based upon widespread and large-magnitude effects that can readily be measured? The alternative would seem to be that the hue-heat effect is simply an intellectual one, a belief. You might believe that you would feel warmer in a red bedroom but you do not feel warmer. For "sales purposes" the effect could still be useful for the designer.

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# mental health and the law

## Mental Health Services to Juvenile Courts
## I. Consultation and Education for Court Personnel

**Harry M. Core and David R. Lima**

The provision of mental health consultation to juvenile court systems has been complicated by conflicts between the philosophies of the two systems. One hears workers in each group sketching stereotypes of the other—"All mental health people want to do is mollycoddle delinquents" or "All probation officers think about is punishing and humiliating their clients."

We hope that the problems and situations encountered by the Lake County Mental Health Clinic in providing consultation services to the juvenile division of a county court will provide guidelines to help others work through some of the conflicts.

The agencies are located in Lake County, Ohio, a middle-class suburban area east of Cleveland. The community mushroomed in the 1950's, when the population increased from 75,000 to 150,000 but it experienced a lag in the development of health and welfare services. The clinic opened in 1957, and at about the same time the county court began to emphasize its juvenile division with the hiring of a chief probation officer.

The juvenile division then hired a second probation officer; the two men, who had distinguished military careers and records as police officers, symbolized strength, maturity, and rigid self-control. Their method of dealing with probationers was setting firm limits on acting-out behavior with the backup of confinement in the county detention home.

While the probation officers conceived their role as rehabilitative, they rarely felt it was related to "treatment." In spite of occasional criticism that the division's approach was overly punitive, the community seemed to accept and appreciate the division's work.

For several years the juvenile division and the clinic struggled with their own growing pains, evolving independently but occasionally finding youngsters and families of mutual concern in their caseloads. As the clinic developed, it began to take more notice of the juvenile division, and invited increasing numbers of referrals from it.

With more contact, we realized that the probation staff were effective with acting-out youngsters who needed firm and consistent discipline. We also realized that the staff lacked knowledge to recognize emotional disorders and to develop treatment skills as alternatives to the disciplinary style. We felt that we could offer a community service by providing consultation to help them acquire that knowledge; that was consistent with the clinic's scheme of helping community caretakers enhance their ability to handle mental health problems, with less need to refer clients into the mental health system.

In middle 1968 we approached the division and began discussions about the kinds of consultative service we could offer. The division proposed that we conduct therapy groups for their adolescent probationers, "with the probation officer sitting in." The indirect method of consultation appears to be

a safer technique for developing the trust and involvement of most consultees than is a direct confrontation about their personal problems and reactions to clients. Certainly that applied to the juvenile division staff.

We asked to include case consultation with the probation officers and educational seminars for the entire staff, which included detention-home and clerical workers. The court agreed, and a contract was written.

A consultee's inability to deal adequately with the mental health problems of his client and willingness to accept consultation depends on four factors: lack of understanding of the psychological factors in the case, lack of skill or resources to deal with the problems, lack of professional objectivity, and lack of confidence and self-esteem due to fatigue, inexperience, youth, or old age.

To deal with the lack of understanding, we planned to transmit information at the consultees' level, not ours. To improve their skills, we would use the group therapy program. To improve their objectivity, we would not deal with their problems, but focus on the clients' difficulties. To bolster confidence and self-esteem, nonspecific ego support seemed indicated.

We were prepared for the division staff to present "impossible" cases for consultation at first. We also knew that the initial cases would be somewhat removed from the consultees' life situations, which would help them avoid examining their feelings. In group treatment, we expected the probation officers to be reluctant to take an active role as cotherapists. We expected that during inservice training sessions those invested in a punitive approach would resist new ideas. We knew that as the program continued, we would need to reassure the probation officers about their capabilities at the same time that we explained our role and function as consultants.

To enable the consultees to become more self-reliant, we would help them solve problems within the existing structure of the court, give technical advice, and handle their personal problems indirectly by focusing on their work-related problems with clients. One major objective was to become a partial role model, especially for the officers who would be learning a group therapy approach to treating juvenile delinquency.

All three parts of the program were under way by early 1969. At that time the division included the chief probation officer (called the director of court), three other probation officers, and about 16 clerical and detention-home workers. The officers had a caseload of about 80 adolescent probationers, most of whom had been in the detention home. During the year and a half that we worked intensively with the division, three probation officers were added.

The group therapy program started with two girls' groups and one boys' group, because two women and one man probation officer were interested in such sessions. The groups were composed of six to eight first offenders. The weekly sessions at the court house were led by a clinic social worker, with a probation officer as cotherapist. The groups were problem oriented and open ended.

The girls' groups succeeded moderately, and the boys' group failed. That situation caused us to make changes during the first few months.

It became evident that first offenders with mild offenses were not motivated to meet in groups to talk about problems. They preferred individual 10- to 15-minute sessions with their probation officer every other

week. Even though group therapy is considered a less intensive and less threatening mode of treatment, our first offenders felt that inclusion signified they were "sick." As a result, the meetings were poorly attended. Thus for later groups we selected chronic offenders whose offenses were more severe. The girls in the later groups used the meetings to talk about problems, especially those related to their families and peer groups. The boys were not comfortable discussing problems and feelings, and after the three unsuccessful groups, we changed the format to activity-oriented sessions at the YMCA. Structured group discussions were kept to a minimum; the therapist and cotherapist talked individually with the boys when their behavior during recreational activities indicated intervention would be helpful.

We found the judicial atmosphere of the court house a hindrance. After four girls' groups were held, we moved their sessions to churches, schools, and other less formidable surroundings.

After each session the social worker met with the probation officer. The discussion of group interaction gave the officer a different perception of his probationers; through discussion of group process he gained a new perspective about his role and relationship with them.

When each therapy group was organized, the probation officer's role was that of an observer, but he was encouraged to participate as much as he felt he could. As the officer's participation, skill, and confidence increased, the social worker talked about leaving and functioning only as a consultant. The officer usually acknowledged wanting to lead the group by himself, but expressed realistic anxiety. The social worker eventually withdrew as the officer's anxiety decreased. The social worker would then find another probation officer interested in starting a therapy group, and the process was repeated.

In about two-thirds of the groups, the officer continued the sessions after the social worker withdrew. If the officer was not comfortable enough or did not have the skills or attitude for continuing, we did not push him.

One aim was to give the adolescents a positive setting in which they could work through the problems confronting them, so that their improved behavior would result in their being taken off probation. Many probations ended earlier than planned. Among the 60 adolescents who took part in the program, readmission rate to the detention home dropped 48 percent.

The group program also helped turn the probation officers from a punitive to a treatment-oriented approach; that was evidenced in part by the appointment of one officer as head of group programs. The social worker no longer initiated and led therapy groups, but provided consultation to that administrator. Another indicator was the probation officers' request for more theoretical background in group therapy; the clinic began to provide ongoing training for them. In addition, the court employed a consulting clinical psychologist to help division staff initiate group therapy in the detention home.

At the same time the initial group therapy program got under way, the clinic began monthly seminars for all juvenile-division staff members and monthly case consultations for the probation officers. We feared it would be difficult to present material that would be meaningful to the whole staff because of their diversity of education, experience, and status, but the differences caused little difficulty.

The staff wanted what was essentially a course in normal and psychopathological child development, with lectures, films, and discussion. We set up the sessions along those lines, with didactic material at the beginning, followed by discussion. At times the seminar leader presented theoretical material in a somewhat academic fashion, but made an effort to translate it into practical concepts. He took care not to be condescending toward those with less formal education, and they proved to be valuable contributors to the discussions.

We can summarize some principles that we learned during the seminars. The teacher-consultant must not present himself as an expert with all the answers. He must remain flexible, listen a lot, ask opinions and respect them, and demonstrate humility about his role. He must avoid ivory-tower presentations, staying aware of the need to link theoretical material to daily experience. In dealing with a diverse group, he must recognize attempts at manipulation by an individual or subgroup. For instance, a staff member who disagrees with a supervisor's policy may maneuver the teacher-consultant into making a critical statement about it. The social worker tried to be sensitive to such situations. When policy issues arose, he referred them to the director of court to discuss with the other staff. The social worker's role was always that of enabling all disputants to state their case, never that of instigating challenges to organizational authority.

At the end of the 18 months, it was evident that the staff had benefited from the seminars. Most apparent was an improvement in morale and in a sense of dedication to the agency. We observed a new attitude of professional pride, which we attributed partly to the consultant's dealing with staff as fellow professionals. While the greatest gains may have been due to the improved communication fostered by the discussions, the didactic material enhanced the staff's knowledge of human behavior and individual differences, which imbued them with the desire to learn more.

By then we felt that the staff was convinced enough of the value of in-service training to maintain it. We asked them to appoint a director, and withdrew to the role of consultant. The division has developed an imaginative educational program, enriched by outside speakers of varied backgrounds.

The clinic staff supplement the program with seminars. For instance, we conduct a seminar on interviewing techniques and counseling and a family-therapy seminar for more experienced probation officers.

The monthly case consultation sessions, in which the social worker met with the probation officers as a group, were the most threatening part of the program. Feeling the resistance, the social worker steered away from case discussion and accepted the request for more "professional-level lectures." He recognized the fear that the clinic's intrusion into the system challenged the authority structure, and the fear that we intended for them to abandon all their traditional approaches. The social worker pointed up positive factors in the established methods and procedures while suggesting alternative approaches when the old ways failed.

During our early months of working with the probation officers, in the case consultations and group therapy, we tried to establish ourselves as trustworthy individuals whose motive was to strengthen the probation service; we did so as much through informal personal contacts as through our attempts to watch our manners by not violating

the division's chain of command. A hidden agenda would have sabotaged any prospect of success for the consultation program.

The result was that the director of court announced that policies were changing, and that he felt treatment goals were consistent with the probation officer's role. Immediately tensions were relaxed, and in the case consultations the social worker was able to enter into case discussions more openly. By the end of the year and a half, the probation officers were requesting further consultation and theoretical material which has been provided by the court's clinical psychologist and the clinic's later seminars.

The mental health consultant must recognize the differences between the mental health and juvenile probation systems. He should not aspire to make the probation department a pseudo-psychiatric clinic, for its role is to work with youth who are out of control, not necessarily mentally ill. One goal is to help the probation officer discriminate between clients who primarily need external controls and those who need more of a therapeutic or counseling approach. A second goal is to enhance the officer's ability to provide counseling or to make referrals.

If the consultant is not aware that mutual biases exist, his attempts to provide consultation may collapse. It is vital to begin work at the entry points suggested by the consultees. In establishing himself in a position of trust, the consultant must keep in mind the authoritarian nature of a probation department. It is important that he adhere to the chain of command and avoid challenging agency policy.

It is a mistake to feel that agency personnel cannot absorb sophisticated material; on the other hand, the consultant must strive to translate his knowledge into forms that are useful in daily work. A thorough understanding of the agency's culture is a prerequisite for transmitting his expertise; here again, informal contacts play a vital role.

The consultant should recognize that some individuals migrate toward probation work because of a need to be in control of themselves and others. Many will not be receptive to an approach that they consider permissive, and the mental health consultant is unlikely to change their attitudes. Perhaps the best he can do is to acknowledge their value with certain youngsters and hope that the agency learns to discriminate in assigning probationers to them.

However, many people who enter probation or detention work are capable of and interested in learning more diversified approaches. With these workers the major work can be done, by influencing them to examine alternatives to strict control or punishment as the primary means of rehabilitating delinquent youth.

## II. Training Volunteers as Probation Supervisors

**Sheldon Silk**

Many social agencies face demands for services but lack funds to meet the needs of their clients. Among them are juvenile courts.

Typically, a young offender meets with the juvenile officer and is put on probation with the hope that he will stay out of trouble. Probation gen-

erally means a meeting with the juvenile officer once a month, but for many courts the increasing demands of new referrals preclude such meetings. Thus it is not unusual for a probationer to see the officer only once every 2 or 3 months. That is not a satisfactory arrangement since the success of probation depends to a large extent on the quality and degree of supervision.

In the past 5 years a movement has been under way to use volunteers from the community as juvenile court supervisors. The concept is that individualized attention is the key to successful probation. Volunteers are assigned to work with one youngster at a time, essentially fulfilling the role of the juvenile officer.

Numerous courts have reported positive results from the program. The volunteer concept is not a panacea, but it does offer assistance to juvenile officers and provides opportunity to use a wide array of approaches geared to the youngsters' individual circumstances.

Since 1970 the East Central Missouri Mental Health Center has provided consultation and services to the juvenile court of the 12th Judicial Circuit, which serves three counties in a rural area of approximately 50,000 people. Referrals to the court, which employs one juvenile officer and one deputy juvenile officer, average between 45 and 50 a month.

To alter that situation, I worked with the 12th Judicial Circuit to develop a program using volunteers. The program began in June 1971. Each volunteer meets with the youngster for a minimum of an hour a week for the entire probation, which usually ranges from 3 to 6 months. He may counsel the youngster or take part with him in sports or community activities. The volunteers have their own supervisor, a former welfare casework supervisor, who works with the program part-time. He is available for consultation in making decisions about individual cases.

The volunteers vary in age and background. Their common bond is a desire to help. However, they often lack the skills to work with young offenders and knowledge about adolescent behavior in general.

To help the volunteers acquire those skills, I began a series of seven training sessions. The 2-hour weekly sessions focused on the situations the volunteers could expect to face in their work. The techniques were designed to develop resourcefulness and ability to explore alternatives and to implement ideas.

The group was composed of nine men and nine women ranging in age from 23 to 65. Seven had previous experience in counseling. All had completed high school, and half had completed 4 or more years of college.

The first session focused on understanding how the offender relates to school, peers, parents, authority in general, and supervision by the court. The topic was introduced by showing *A Second Chance,* a film designed for use with volunteer supervisors. The film and its study guide provided a starting point for training, and gave the participants their first look at what it is like to be a volunteer meeting his probationer. Participants were given a list of resource materials, including books, films, and articles, but no readings were assigned.

The second session provided theoretical background and an overview of normal adolescent development. Topics included normal development versus the emergence of delinquent behavior, complexity of delinquency and personalities associated with it, limitations of methods in working with

delinquents, and criteria for determining the extent of maladjustment.

The subject of the third session was how to conduct an initial interview to gather pertinent history and formulate plans for supervision. Videotapes of interviews were shown and discussed.

Motivating the probationer for school or employment was the topic at the fourth session. The participants were given a paper that described how to handle specific situations with probationers. They then divided into groups to role-play situations they might encounter.

The fifth section focused on approaches to helping the probationer. The participants were given a social history of four adolescents whose maladjustment ranged from mild to severe. They were divided into small groups to review the case histories and formulate goals and approaches for each case. The class reassembled, a reporter related the findings, and discussion followed.

The drug scene was the subject of the sixth session. Participants were given brochures prepared by the National Institute of Mental Health. A lecture focused on solvents and marihuana, the drugs most abused in this area, was presented. The session stressed how to identify and react to drug abusers, rather than historical or cultural features of drug use.

The final session dealt with helping the volunteer to assess changes in the probationer. Case illustrations of success and failure were used. Small-group discussion followed a formal lecture.

To help evaluate the effectiveness of the program, participants completed questionnaires during the first and last sessions. They generally approved the length and content of the program, and indicated they felt the sessions would help them in dealing with young offenders. They felt an approach that emphasized group discussion of actual cases was more meaningful than lectures. Small-group problem-solving sessions were considered the most useful. Although role-playing was not used extensively, the participants found it helpful.

They believed that material should be relevant to their needs and concisely presented. They expected to receive ongoing supervision of a case-discussion, problem-solving type as they continued their work. Although they could consult with the supervisor about individual cases, they felt the need to discuss particular cases and their difficulties with their fellow volunteers. They seemed to derive more security from such discussion. It also helped them develop their capacity for independent decisionmaking.

In one sense the success of training depends on the extent to which the trainer can assist the trainee in his quest for ideas and techniques. The trainer must not only provide answers but must help the trainee develop his own resourcefulness and find his own answers. It becomes frustrating for many volunteers to realize that perhaps there are no answers, only more questions. Yet through that discovery they develop a broader approach to problems, increasing their potential for achieving their goals with young offenders.

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Condensed with permission from *Hospital & Community Psychiatry*, 23(6): 174–180, 1972. Reprints of original article from: (Part I) Harry M. Core, ACSW, Assistant Director and Director of Social Services, Lake County Mental Health Clinic, Mentor, Ohio 44060; (Part II) Sheldon Silk, M.S., Clinical Psychologist, East Central Missouri Mental Health Center, Mexico, Mo. 65265

# mental health news digests

**Environmental Information System**

The National Science Foundation and Oak Ridge National Laboratory are organizing a national environmental information network.

The Oak Ridge Environmental Information System Office (EISO) is made up of several specialized information centers, or project support centers, and a variety of specialized data bases, operating on local, national, and international levels. The centers are largely information-oriented, rather than document-oriented. Each is part of a research activity. The management of each center includes specialists who can answer inquiries from their own knowledge, and can decide how information might best be transferred. The centers also can participate in and guide the preparation of state-of-the-art reviews, and can cooperate with other centers for a wider range of synthesis and analysis.

The EISO data base now includes 216 information centers, 1647 research projects and project leaders located throughout the world, and names of Oak Ridge staff members involved in environmental research. The base is growing rapidly as new projects and programs are located.

Four ORNL centers are now part of the environmental information network: *Ecological Sciences Information Center (ESIC)*—bibliographic reference data relevant to the movement, cycling and concentration of elements, isotopes, natural compounds and pollutants in different ecosystems; *Environmental Mutagen Information Center (EMIC)*—information on genetic effects of drugs, food additives, cosmetics, and industrial chemicals; *Eastern Deciduous Forest Biome Information Center*—established in connection with the International Biological Program includes computer storage, retrieval, and analysis of numerical data collected at the five sites within the Biome; *Toxicology Information and Response Center (TIRC)*—first established as an arm of the National Library of Medicine; initial emphasis will be on responding to questions on the toxicity of pesticides and other chemicals in the environment.

The following data bases are under development:

*Toxic Materials in the Environment*—references on arsenic, beryllium, cadmium, chromium, copper, fluorine, lead, manganese, mercury, molybdenum, nickel, and zinc. Areas covered are natural occurrence, mining and extraction; uses and consumption; waste disposal, pollution sources and pollution; analytical methods and monitoring equipment; control, abatement and restoration; legal and political aspects; physiological and toxicological aspects, and biotransformation and ecosystem movement.

*Social Sciences Data Base*—data from the 1970 Census on Population and Housing and other sources on employment, business patterns, and migration for State economic areas.

*Regional Modeling Data Base*—abstracts on the development and use of mathematical models capable of simulating the economic, societal, ecological, and land use responses of a geographical region to alternative policy decisions.

*Energy Data Base*—material relating to stationary sources and electric power plants. EISO has also been developing an inventory of research and development in all energy fields, including power, heating, and transportation using

sources as fossil fuels, nuclear, hydroelectric, solar radiation, geothermal. Problems concerning exploration, mining, refining, conversion, and distribution of energy resources are covered.

*Material Resources and Recycling Data Base*—materials include paper, glass, coal, asbestos, rubber, plastics, fly ash, and pesticides; emphasis is on solid waste management, including collection, transfer, disposal, and recycle potential.

EISO can also employ other data bases for batch searches. These include:

*Air Pollution Technical Information Center*—approximately 3500 items on 13 toxic elements.

*Tamplin-Gofman Data Base*—Contains over 10,500 items on radioisotope movement in natural food chains, and radionuclide cycling in the environment.

*Air Force*—over 625,000 references in physical science and technology selected from foreign literature for the Central Information Reference and Control System, Wright-Patterson AFB, Ohio.

*EPA Data Collections*—including Water Quality Office summaries and literature on oil and hazardous materials, marine biology, solid wastes and industrial wastes.

*Bulk data bases*—These data bases can be queried by ORNL staff members, but may not be available for use outside ORNL. Includes *Metals Abstracts; SPIN* (Searchable Physics Information Notices); *Biological Abstracts Previews* and *BioResearch Index; CBAC* (Chemical-Biological Activities).

*Directory services*—The computerized directory of information centers, research projects, and individual investigators is the first step in automating the linkage of environmental information sources into a national network. Each entry contains the name, address, and telephone number of an individual, information center, or research organization, and a brief text describing the mission, subject, scope, and sponsor. For individuals, descriptions include professional work specialties, available skills, and special interests such as hobbies and community activities. Output of the system can include address labels, address, abstract and keyword information, in various formats.

For further details, write to G. U. Ulrikson, Director, Environmental Information System, ORNL, Oak Ridge, Tenn. 37830. (From the *Environment Report,* June 2, 1972).

**Significance of "Community" in the Urban Environment**

In an effort to understand the significance of "community" in the metropolitan environment, a panel has begun a study of changing characteristics of metropolitan areas and urban living. The study is based on the fact that as metropolitan areas change and as people, goods, and vehicles are dispersed, many aspects of daily life are changed. Patterns of employment, transportation, and communication all change, as well as access to urban services. Neighborhoods and social structures also change.

The panel hopes to be able to spell out "policy options in the area of community development and housing which may be inferred from the environment and response." The study was organized in the National Research Council's Division of Behavioral Sciences at the request of the National Academy of Sciences, National Academy of Engineering Advisory Committee to the Department of Housing and Urban Development. (From the National Academy of Sciences *News Report,* May 1972).

### Head Start and Community Mental Health Centers

A new partnership-for-children between local Head Start Programs and Community Mental Health Centers has been launched by two DHEW components—the Office of Child Development and the National Institute of Mental Health. This new collaborative effort is intended to improve the quality of mental health preventive, diagnostic, and treatment services for Head Start children and their families. It is an important step in integrating existing HEW resources for the sake of emotionally disturbed, mentally retarded, and physically handicapped Head Start children and their families.

Head Start is a comprehensive child development program designed for preschool children from low-income families. The psychological well-being of children and their families is only one essential element of the Head Start program which also includes physical health, nutrition, and education. There now are 291,000 children enrolled in full-year Head Start programs in some 2,000 U. S. communities. Many of these programs could benefit from additional psychological and social services.

Community mental health centers serve and treat persons of all ages and socioeconomic classes in their home communities. To date, over 450 centers have been funded, and over 320 are operational. Many mental health centers will now have additional opportunities to provide prevention and treatment services, including group and individual consultation, to Head Start children and parents. Conversely, mental health centers will gain by their association with the "outreach" activities of Head Start. In addition, staff of community mental health centers and Head Start programs can further their community interests by participating, as appropriate, in Medicaid-required early screening and diagnosis activities for preschool children. Working together, the staffs will bring new emphasis to planning and implementing the treatment of children who are discovered to be emotionally disturbed.

OCD and NIMH have plans to identify the most promising of the newly initiated collaborative programs and to monitor their progress. In this way they can learn which are best suited to the needs of their communities and which can serve as models for other communities.

For more information write to the Office of Child Development, P. O. Box 1182, Department of Health, Education, and Welfare, Washington, D.C. 20013 or to the National Institute of Mental Health, 5600 Fishers Lane, Rockville, Maryland 20852.

### Search for "Narcotic Antagonists"

Compounds which have the ability to block the effects of heroin in the body are called "narcotic antagonists." Major advantages of antagonists are that they have little or no abuse potential and may provide a useful therapeutic modality that can assist the addict in becoming drug free. An antagonist could block the heroin-induced "high," help in the initial abstinence, and assist in making the addict more amenable to other forms of therapy needed to rebuild his life.

Nine research contracts totaling more than $2 million have been awarded by the White House Special Action Office for Drug Abuse Prevention and the National Institute of Mental Health for clinical and preclinical testing

of "narcotic antagonist" drugs. Seven of the new contracts are for studies of antagonists such as "cyclazocine" on which there already exists a substantial body of animal research data indicating potential value for treating heroin addiction. Two contracts are for preclinical studies in animals of the pharmacology and toxicology of several new narcotic antagonist compounds. A 10th contract has been awarded for organizing a scientific meeting to discuss antagonists.

These contracts represent a major drive to develop new therapeutic agents which will assist patients rid themselves of addiction and avoid returning to previous drug habits once they have been rehabilitated. Narcotic antagonists will provide an adjunct to medical, psychological, social and law enforcement approaches in dealing with the U.S. addiction problem.

For details, write to the Division of Narcotic Addiction and Drug Abuse, National Institute of Mental Health, 5600 Fishers Lane, Rockville, Maryland 20852.

**Professional Training in Psychology**

Professional values and methods of training will be examined in the light of relevancy to contemporary social problems at an American Psychological Association Conference on "New Patterns and Levels for Professional Training in Psychology" to be held in June 1973. Among the concerns of the Conference will be the recruitment of economically disadvantaged students for professional training, elimination of sexism in training, the status of nondoctorally trained psychologists, and the question of whether psychological services are meeting the public's needs.

The National Institute of Mental Health has awarded a 5-year grant of $94,904 for planning, implementation, and followup studies of the conference. As part of the followup program, an 11-person commission will be formed to monitor the conference's recommendations for a period of 4 years.

Professional trainers, students, and employers, and recipients of psychological services will be invited to attend. Minorities and powerless majority groups will be represented among the participants and observers.

For information write to Dr. Ronald B. Kurz, Educational Affairs Office, APA, 1200 17th St. N.W., Washington, D.C. 20036. (From the *APA Monitor*, May 1972)

**American Psychological Foundation Awards for 1972**

The National Media Awards for "outstanding, accurate reporting which increases the public's understanding of psychology" were presented at the American Psychological Association convention in Honolulu, Hawaii. The $500 awards and citations went to Gay Gaer Luce and Erik Peper in the books/magazines/monographs category for "Biofeedback: Mind Over Body, Mind Over Mind," which appeared in the *New York Times Magazine* (the third such award for Ms. Luce); to CRM Productions for the film *Learning* in the television/radio/movie category; and to Ron Hollander in the newspaper category for his series of eight articles in the *New York Post* on "Hospital Psychiatric Emergency Rooms."

Cited for honorable mention in the television/radio/movie category were:

The *Politics of Mental Health,* a radio program produced by the Great Atlantic Radio Conspiracy in Baltimore, Maryland, and a television documentary called *Probe . . . And Throw Away the Key,* produced by WRC-TV, Washington, D. C. In the newspaper category three reporters received honorable mention: Ronald Kotulak, science editor of the *Chicago Tribune,* Richard Pothier, science writer for the *Miami Herald,* and Richard A. Shaffer, science writer for the *Wall Street Journal.*

Special recognition was given to Linda Hahn for a series of articles in the *Allegan* (Michigan) *County News and Gazette. Life* magazine received special recognition for its five-part series on "The Brain." A psychologist, Barbara Ellis Long, who wrote a series of articles for *Grade Teacher* magazine also received special recognition.

**New Publications**

*Evaluation: A Forum for Human Service Decision-Makers* will provide an up-to-date, interdisciplinary communication medium for participants in and consumers of the human services. In addition to the presentation of research findings, *Evaluation* will provide its audience with information on evaluation activities in public and private services, new or replicated approaches to evaluation and the utilization of evaluative findings, and the names and addresses of professionals willing to participate in interdisciplinary or cross-disciplinary evaluation activities. A major goal will be to promote the development of a national policy for human services which would allow corresponding development of evaluation objectives and satisfactory indicators of progress toward those objectives. Plans are to publish quarterly. The initial publication is being supported by the National Institute of Mental Health. Information is available from Ms. Susan Salasin, Editorial Director, *Evaluation* Magazine, Box 17, 501 South Park Avenue, Minneapolis, Minn. 55415.

*Mental Health Book Review Index*—The 1972 volume of this annual publication is now available. It contains book reviews selected and reviewed by specialists and organized as a bibliography by librarians, and aims at a synthesis of significant monographic literature in the behavioral sciences and mental health field. The reviews are selected from over 200 English-language journals. This volume also contains an editorial on "The Emerging Field of Sociobibliography: Reassessment and Reorientation of Access to Knowledge in the Social Sciences." The Index is sponsored by the World Federation for Mental Health, the International Council of Psychologists, and the New York University Department of Psychology. Subscriptions are $10 a year payable to Mental Health Book Review Index, Paul Klapper Library, Queens College of the City University of New York, Flushing, New York 11357.

**Conference on "Victimology"**

The First International Symposium on "Victimology" will be held in Jerusalem, Israel on September 2–6, 1973. The program will include sessions on the study of victimology, the victim, the offender-victim relationship, and society and the victim—attitudes and policies. For information write to the Organizing Committee, Institute of Criminology, Faculty of Law, Hebrew University of Jerusalem, P.O. Box 4051, Jerusalem, Israel.